Fighting Disease with Electronics

NIHON KOHDEN

ACCESSORIES

NEUROLOGY

2014

Introduction

Dear Customer,

For more than 60 years NIHON KOHDEN has been one of Japan's leading players in medical technology development and manufacturing and has subsidiaries and representative offices in Europe, the US, as well as in the Middle and Far East.

"Fighting Disease with Electronics" – our corporate philosophy – reflects the high standards we have set ourselves in combating disease by developing medical systems, contributing to higher quality of life for patients.

Our large product range of accessories and consumables is known for its outstanding quality, ease of use and reliability. Please note, that only the use of original NIHON KOHDEN approved accessories and consumables guarantee optimal examination results and make an important contribution towards ensuring that your device will continue to function impeccably and reliably even in years to come, while preserving the device's features and functional capabilities.

As your partner in neurophysiological diagnostics, NIHON KOHDEN provides only tested and approved product solutions from classic electrodes for neuromuscular disorders and brain activity detection to specific products for capnography or amplitude-integrated EEG (aEEG). Our commitment to ensure continually highest quality allows you the best care of your patients and enhances the performances of your electromyographs or electroencephalographs.

NIHON KOHDEN invites you to discover the quality and features of our complete accessories and consumables portfolio in this catalogue. Call today for more information or order directly!

Best regards,

NIHON KOHDEN EUROPE GmbH

Kristin Baar

Kristin Baar
Product Manager Accessories & Consumables

Accessories & Consumables Neurology

User Guide

Care of Environment

NIHON KOHDEN is making every possible effort to ensure that the actions of the company and its employees contribute to preserving the environment. In order to conserve paper resources, we decided a more environment friendly approach which allows us to update the catalogue more frequently in the future. Therefore the new accessories and consumables catalogue was designed for view on your computer. It allows you to zoom pictures in order to see more details of the product. If you need indeed certain chapters in print version, you can easily select and print them.

Find the Right Accessories in the Catalogue

You do not know exactly which article you need for your examination?

Following this user guide you will find the content of this catalogue which is organized into parameter categories. In a particular category you will see a list of accessories and consumables with corresponding supply codes, model codes, descriptions and pictures. If you are not sure if one of the listed products will fit to your requirements, please contact us or one of our regional representatives.

You already know the article that you need for your examination?

In the index of the catalogue , from page 141 to page 145 the articles are listed alphabetically as per supply code; from page 144 to page 145, the products are listed alphabetically as per model code. They will help you to find directly the according product page.

If you are using the PDF version, simply use the "search function" of this by entering the description, supply or model code. Or just click on the related chapter on the left side of the document.

Order Information

To order NIHON KOHDEN accessories and consumables or to get more information, please refer to the indicated regional NIHON KOHDEN representatives below.

For your convenience, we have a printable order form at the end of this catalogue so that you can fax in your order directly or mail/e-mail it to us. Please make sure to fill out all requested information as well as the required supply code and according quantity. Please check the general terms and conditions including delivery time, payment and general warranty with your responsible regional NIHON KOHDEN representatives:

For Germany, Austria, Switzerland and Benelux
NIHON KOHDEN EUROPE GmbH, Vertrieb Deutschland
Albert-Einstein-Ring 9, 14532 Kleinmachnow, Deutschland
Fax: +49 (0) 33203/573-19, E-Mail: bestellung@nke.de

For Spain and Portugal
NIHON KOHDEN IBERICA S.L.
C/Ulises, 75A, 28043 Madrid, Spain
Fax: +34 (0) 91 300 46 76, E-Mail: info@nkib.es

For United Kingdom
NIHON KOHDEN UNITED KINGDOM Ltd.
Tolworth Tower – 19th Floor, Ewell Road, Surbiton,
Surrey KT6 7EL, United Kingdom
Fax: +44 (0) 20 83 90 46 75, E-Mail: mail@nihonkohden.co.uk

For France
NIHON KOHDEN FRANCE SARL
8, rue François Delage, 94230 Cachan, France
Fax: +33 (0) 1 49 08 93 32, E-Mail: info@nkfrance.fr

For Italy
NIHON KOHDEN ITALIA S.r.l.
Via Fratelli Bronzetti, 28, 24124 Bergamo, Italy
Fax: +39 (0) 35-232546, E-Mail: info@nkitaly.com

For all other European Countries, Russia, Turkey and Israel
NIHON KOHDEN EUROPE GmbH
Raiffeisenstraße 10, 61191 Rosbach v. d. H., Germany
Fax: +49 (0) 6003/827-599, E-Mail: info@nke.de

Highest Safety and Quality Standards

Comprehensive quality assurance systems ensure that each of the more than 4,000 NIHON KOHDEN staff members makes his/her contribution towards development, manufacture, marketing and customer services such that maximum product quality is guaranteed.

NIHON KOHDEN is certified according to ISO 9001, ISO 13485 and ISO 14001.

NIHON KOHDEN designs and manufactures medical equipment in conformity with the standards of IEC 60601-1 (Medical Electrical Equipment: General Requirements for Safety).

NIHON KOHDEN products have earned a reputation for quality and long life. One reason is that all export products and major components are manufactured in our own ISO 9001 and IEC 13485 certified factories.

In 1984, NIHON KOHDEN implemented a comprehensive companywide quality system, IQC – Integrated Quality Control. Under this system, quality begins at the earliest stage of every product's life. Our IQC applies to the entire manufacturing process, from the planning stage through product development, design, parts procurement, production, inspection, storage, sales, distribution and after-sales support. IQC also involves nearly every employee.

Our rigid test procedures are structured to exceed the provisions of the GMP, Good Manufacturing Practice, codes enforced by the US Food and Drug Administration. NIHON KOHDEN also has 130 in-house quality control inspection staff to ensure that standards are implemented and maintained in every department of the company.

IQC extends beyond production and into sales and support at each subsidiary. This staff is responsible for ongoing contact with customers to determine their needs and making sure that these changing requirements are reflected in new products. Service engineers are responsible for communicating any problem that may arise in the use of NIHON KOHDEN products, and assuring the customers of NIHON KOHDEN's commitment to their satisfaction.

In 1995, NIHON KOHDEN received ISO 9001 certification, the international standard for quality systems. In addition, NIHON KOHDEN's four manufacturing facilities in Japan are the first factories in the medical equipment industry to be certified by the CSA, Canadian Standards Association, under their category certification system. Most products sent to North America carry the CSA label.

Quality improvement is and always has been an ongoing process for NIHON KOHDEN.

Convince yourself of our expertise and the high quality of our products and services! Order directly!

Quick Guide

Electromyographs, Electroencephalographs, Polysomnography Boxes

ELECTROMYOGRAPHS


MEE-1000


MEB-9400


MEB-9200


MEB-2300


MEB-2200


MEB-9100


Combo


MEB-7102


MEB-5500


MEB-5200


MEB-4200

ELECTROENCEPHALOGRAPHS


EEG-1200


WEE-1000


EEG-9200


EEG-9100

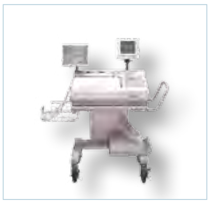

EEG-1100


Combo


EEG-8300


EEG-7400


EEG-7300


EEG-5500


EEG-5600


EEG-4400

POLYSOMNOGRAPHY BOXES


PSG-1100


JE-921A


JE-912AK


NF-SCREENER3

I. Accessories & Consumables for Neurophysiological Diagnostic Examinations

Labour-intensive neurophysiological diagnostic examinations place particular demands on the ergonomics of the diagnostic measurement systems used. The development of the first electromyographs by NIHON KOHDEN in 1956 laid the foundations for a comprehensive product range. Reliable EMG measurements depend on consistent impedances (electrode-skin junction). The quality of the electrode is therefore extremely important to obtain a noise-free high signal quality. Inappropriate working electrodes cause additional manual adjustments by the user which increases the time of measurement. Since the beginning NIHON KOHDEN electrodes are known for their outstanding quality which allows a quick and reliable recording. Thanks to our extensive experience, we are able to offer you ideal product solutions for hospitals and medical practices.

1. Needle Electrodes for Electromyography (EMG) Studies

Electromyography (EMG) studies are a technique to verify physical condition of the muscles and the nerves that manage the muscles. For this purpose either surface (or skin) electrodes or minimal invasive electrodes (needle electrodes or wires) can be used. Whereas the first types of electrodes are mainly used for general muscle activity observation, the second types are usually employed to identify electrical activities of a nerve root.

To record the electrical behaviour of the muscles a very thin needle electrode is percutaneously inserted through the skin into the muscle. EMG studies are helpful to detect muscle disorders during rest or activity.

1.1. Disposable Concentric EMG Needle Electrodes

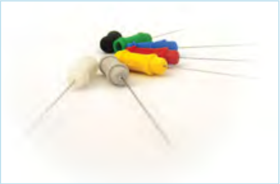
Facts

STRAIGHTFORWARD, COMFORTABLE, EFFECTIVE

NIHON KOHDEN disposable concentric EMG needle electrodes are characterized by an easy handling. The ergonomic colour-coded hub design allows an easy identification of the needle size. For your different kinds of applications, NIHON KOHDEN provides you a complete portfolio of suitable needle lengths and diameters. A high patient comfort is assured by an excellent sharpness of the needle tip for a soft skin penetration and a minimized patients' pain. Additionally the tip geometry makes less penetration force necessary and the orientation-free connection to the connection cable simplifies the usage. High signal quality is achieved by low impedances. The stable handling and good grip due to the ribbed hub design guarantee confident and reliable recordings.

1.1.1. Premium Line

Supply Code	Model	Description
NKD-TR4537P		Premium Line Needle Trial Kit, incl. 6 NKD-NM4537P & 1 NKD-BM113A **For current products:** MEB-9400/2300 **Packing unit:** 1 kit
NKD-NM4525P		Disposable Concentric EMG Needle Electrode, Premium Line, colour: violet, size: 0.45 x 25 mm, requires NKD-BM113A **For current products:** MEB-9400/2300 **Packing unit:** 25 pcs D
NKD-NM4537P		Disposable Concentric EMG Needle Electrode, Premium Line, colour: orange, size: 0.45 x 37 mm, requires NKD-BM113A **For current products:** MEB-9400/2300 **Packing unit:** 25 pcs D
NKD-NM4550P		Disposable Concentric EMG Needle Electrode, Premium Line, colour: pink, size: 0.45 x 50 mm, requires NKD-BM113A **For current products:** MEB-9400/2300 **Packing unit:** 25 pcs D
NKD-BM113A		Connection Cable for Disposable EMG Needles NKD-NMxxxx, 5-PIN DIN connector, cable length: 1.5 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R





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1.1.2.

Classic Line

Supply Code	Model	Description
NKD-TR4537		Classic Line Needle Trial Kit, incl. 10 NKD-NM4537 & 1 NKD-BM113A **For current products:** MEB-9400/2300 **Packing unit:** 1 kit
NKD-NM3525		Disposable Concentric EMG Needle Electrode, Classic Line, colour: dark grey, size: 0.35 x 25 mm, requires NKD-BM113A **For current products:** MEB-9400/2300 **Packing unit:** 25 pcs D
NKD-NM4525		Disposable Concentric EMG Needle Electrode, Classic Line, colour: black, size: 0.45 x 25 mm, requires NKD-BM113A **For current products:** MEB-9400/2300 **Packing unit:** 25 pcs D
NKD-NM4537		Disposable Concentric EMG Needle Electrode, Classic Line, colour: blue, size: 0.45 x 37 mm, requires NKD-BM113A **For current products:** MEB-9400/2300 **Packing unit:** 25 pcs D
NKD-NM4545		Disposable Concentric EMG Needle Electrode, Classic Line, colour: yellow, size: 0.45 x 45 mm, requires NKD-BM113A **For current products:** MEB-9400/2300 **Packing unit:** 25 pcs D
NKD-NM4540		Disposable Concentric EMG Needle Electrode, Classic Line, colour: red, size: 0.45 x 40 mm, requires NKD-BM113A **For current products:** MEB-9400/2300 **Packing unit:** 25 pcs D
NKD-NM4550		Disposable Concentric EMG Needle Electrode, Classic Line, colour: grey, size: 0.45 x 50 mm, requires NKD-BM113A **For current products:** MEB-9400/2300 **Packing unit:** 25 pcs D
NKD-NM5565		Disposable Concentric EMG Needle Electrode, Classic Line, colour: beige, size: 0.55 x 65 mm, requires NKD-BM113A **For current products:** MEB-9400/2300 **Packing unit:** 25 pcs D
NKD-BM113A		Connection Cable for Disposable EMG Needles NKD-NMxxxx, 5-PIN DIN connector, cable length: 1.5 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R





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1.2. Reusable Concentric EMG Needle Electrodes

Facts

Before use, autoclave the needle electrode with the tip of the needle covered with protective tube at 121 °C and 1 bar overpressure for 30 minutes. If the needle tip is deformed or the teflon coating on the needle is damaged, stop using the electrode and replace it with a new one.

Supply Code	Model	Description	
H630	NM-121T	Reusable Concentric EMG Needle Electrode, platinum, size: 0.45 x 20 mm, requires K611/K623 **For current products:** MEB-9400/2300 **Packing unit:** 4 pcs R	
H631	NM-151T	Reusable Concentric EMG Needle Electrode, platinum, size: 0.45 x 50 mm, requires K611/K623 **For current products:** MEB-9400/2300 **Packing unit:** 4 pcs R	
H650	NM-131T	Reusable Concentric EMG Needle Electrode, platinum, size: 0.45 x 30 mm, requires K611/K623 **For current products:** MEB-9400/2300 **Packing unit:** 4 pcs R	
H651	NM-320T	Reusable Concentric EMG Needle Electrode, stainless steel, size: 0.32 x 20 mm, requires K611/K623 **For current products:** MEB-9400/2300 **Packing unit:** 4 pcs R	
H652	NM-330T	Reusable Concentric EMG Needle Electrode, stainless steel, size: 0.32 x 30 mm, requires K611/K623 **For current products:** MEB-9400/2300 **Packing unit:** 4 pcs R	
K611	BM-121S	Connection Cable for H630/631/650/651/652/660, 6-PIN round connector, cable length: 1.0 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	
K623	BM-115S	Connection Cable for H630/631/650/651/652/660, 6-PIN round connector, cable length: 1.8 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	

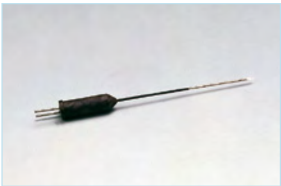
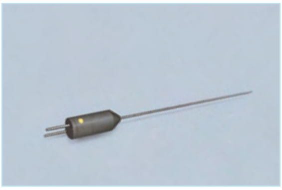
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1.3. Reusable Single Fibre & Macro EMG Needle Electrodes

Facts

Before use, autoclave the needle electrode with the tip of the needle covered with protective tube at 121 °C and 1 bar overpressure for 30 minutes. If the needle tip is deformed or the teflon coating on the needle is damaged, stop using the electrode and replace it with a new one.

Supply Code	Model	Description	
H650A	NM-130S	Reusable Concentric Macro EMG Electrode, platinum, size: 0.45 x 30 mm, teflon isolation: 15 mm, requires K619 **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	
H660	NM-640T	Reusable Single Fibre Electrode, platinum/wolfram, size: 0.45 x 30 mm, internal dia: 0.03 mm, requires K611/K623 **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	
H661	NM-640S	Reusable Single Fibre Macro EMG Electrode, platinum/wolfram, size: 0.45 x 30 mm, teflon isolation: 15 mm, internal dia: 0.03 mm, requires K619 **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	
K619	BM-840S	Connection Cable for H650A/661, 6-PIN DIN round connector, cable length: 1.0 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pair R	
K611	BM-121S	Connection Cable for H630/631/650/651/652/660, 6-PIN DIN round connector, cable length: 1.0 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	
K623	BM-115S	Connection Cable for H630/631/650/651/652/660, 6-PIN DIN round connector, cable length: 1.8 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	

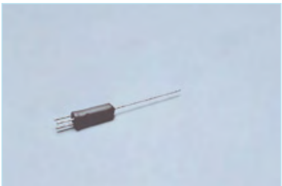
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1.4. Reusable Bipolar Concentric Needle Electrodes

Facts

Before use, autoclave the needle electrode with the tip of the needle covered with protective tube at 121 °C and 1 bar overpressure for 30 minutes. If the needle tip is deformed or the teflon coating on the needle is damaged, stop using the electrode and replace it with a new one.

Supply Code	Model	Description	
H632	NM-220T	Reusable Bipolar Concentric Needle Electrode, size: 0.40 x 20 mm, requires K612/K624 **For current products:** MEB-9400/2300 **Packing unit:** 2 pcs R	
H633	NM-250T	Reusable Bipolar Concentric Needle Electrode, size: 0.40 x 50 mm, requires K612/K624 **For current products:** MEB-9400/2300 **Packing unit:** 2 pcs R	
K612	BM-211S	Connection Cable for H632/633, 6-PIN DIN round connector, cable length: 1.0 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	
K624	BM-215S	Connection Cable for H632/633, 6-PIN DIN round connector, cable length: 1.8 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	

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1.5. Monopolar Needle Electrodes

1.5.1. Disposable Monopolar & Subdermal Needle Electrodes

Supply Code	Model	Description
NKD-EPD1		Disposable Monopolar Needle Electrode for EP, straight type, steel, size: 0.35 x 12 mm, 1 mm connector, cable length: 8.0 cm, sterilised, requires NKD-EPDK **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 25 pcs D
NKD-EPD2		Disposable Monopolar Needle Electrode for EP, bent type, steel, size: 0.35 x 12 mm, 1 mm connector, cable length: 8.0 cm, sterilised, requires NKD-EPDK **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 25 pcs D
NKD-EPDK		Connection Cable for NKD-EPD1/NKD-EPD2, 1.5 mm touch proof connector to 1 mm connector, cable length: 1.5 m **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 10 pcs R
NE-110B		Disposable Subdermal Needle Electrode Prewired, single type, stainless steel, 1.5 mm touch proof connector, size: 0.4 x 13 mm needle (27G), cable length: 1.0 m **For current products:** EEG-1200/9100; MEB-9400/2300; MEE-1000 **Packing unit:** 25 pcs D
NE-115B		Disposable Subdermal Needle Electrode Prewired, single type, stainless steel, 1.5 mm touch proof connector, size: 0.4 x 13 mm needle (27G), cable length: 1.5 m **For current products:** EEG-1200/9100; MEB-9400/2300; MEE-1000 **Packing unit:** 25 pcs D
NE-120B		Disposable Subdermal Needle Electrode Prewired, single type, stainless steel, 1.5 mm touch proof connector, size: 0.4 x 13 mm needle (27G), cable length: 2.0 m **For current products:** EEG-1200/9100; MEB-9400/2300; MEE-1000 **Packing unit:** 25 pcs D
NE-125B		Disposable Subdermal Needle Electrode Prewired, single type, stainless steel, 1.5 mm touch proof connector, size: 0.4 x 13 mm needle (27G), cable length: 2.5 m **For current products:** EEG-1200/9100; MEB-9400/2300; MEE-1000 **Packing unit:** 25 pcs D
NE-215B		Disposable Subdermal Needle Electrode Prewired, twisted pair, stainless steel, 1.5 mm touch proof connector, size: 0.4 x 13 mm needle (27G), cable length: 1.5 m **For current products:** EEG-1200/9100; MEB-9400/2300; MEE-1000 **Packing unit:** 20 pcs D
NE-220B		Disposable Subdermal Needle Electrode Prewired, twisted pair, stainless steel, 1.5 mm touch proof connector, size: 0.4 x 13 mm needle (27G), cable length: 2.0 m **For current products:** EEG-1200/9100; MEB-9400/2300; MEE-1000 **Packing unit:** 20 pcs D



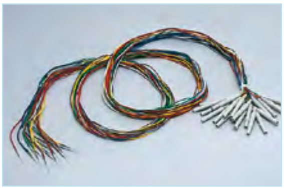
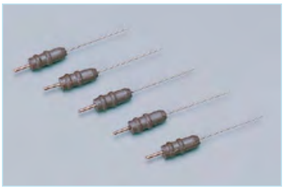




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1.5.2. Reusable Monopolar & Subdermal Needle Electrodes

Supply Code	Model	Description	
H537A	NE-224S	Reusable Subdermal EEG Needle Electrode, stainless steel, 1.5 mm touch proof connector, size: 0.22 x 22.5 mm, cable length: 1.5 m **For current products:** EEG-1200/9100; MEB-9400/2300; BSM-3000/6000/9100 **Packing unit:** 20 pcs R	
H665	NM-710T	Reusable Monopolar Needle Electrode for EP/EMG, stainless steel, size: 0.25 x 13 mm, requires K616 **For current products:** MEB-9400/2300 **Packing unit:** 5 pcs R	
H666	NM-715S	Reusable Monopolar Needle Electrode for EP/EMG, stainless steel, teflon-coated isolation, size: 0.3 x 15 mm, requires K620 **For current products:** MEB-9400/2300 **Packing unit:** 5 pcs R	
H667	NM-730S	Reusable Monopolar Needle Electrode for EP/EMG, stainless steel, teflon-coated isolation, size: 0.3 x 30 mm, requires K620 **For current products:** MEB-9400/2300 **Packing unit:** 5 pcs R	
H668	NM-830S	Reusable Monopolar Needle Electrode for EP/EMG, stainless steel, teflon-coated isolation, size: 0.4 x 30 mm, requires K620 **For current products:** MEB-9400/2300 **Packing unit:** 5 pcs R	
H669	NM-850S	Reusable Monopolar Needle Electrode for EP/EMG, stainless steel, teflon-coated isolation, size: 0.4 x 50 mm, requires K620 **For current products:** MEB-9400/2300 **Packing unit:** 5 pcs R	
K616	BM-710S	Connection Cable for H665, shielded, 2 mm connector, cable length: 1.0 m **For old product:** MEB-4200/5200/5300/5500/7102 **Packing unit:** 5 pcs R	
K620	BM-800S	Connection Cable for H666/H667/H668/H669, shielded, 6-PIN DIN round connector, cable length: 1.0 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	

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2. Electrodes for Evoked Potential (EP) Studies

Evoked potential (EP) studies are tests to measure electrical activity along the nerve pathways in response to visual, acoustical or electrical stimulations. Those stimulations create meticulous electrical signals that pass through the nerve tract and the spinal cord to certain regions of the brain where they are detected by electrodes. For visual evoked response (VEP) tests the electrodes are placed on the scalp. For a brainstem auditory evoked response (ABR) test electrodes are applied on the head or the earlobe whereas they are attached to the wrist, the back of the knee or other places for a somatosensory evoked response (SEP) test.

EP studies are maintained to identify sensory nerve or optic nerve disorders. In addition to this, hearing tests, the indication of brain stem tumours and multiple sclerosis as well as the observation of brain activity among coma patients and the confirmation of brain death, can be realized by those tests. NIHON KOHDEN is focusing on highest signal quality and is providing premium accessories and consumables.

2.1. EEG/EP Electrodes

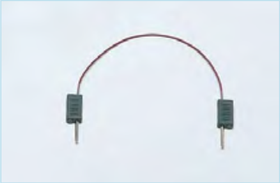
2.2. EEG Electrodes

2.1. EEG/EP Electrodes

Supply Code	Model	Description	
H528	NE-136B	Reusable Evoked EEG Disk Electrodes, Ag/AgCl, cable length: 0.3 m, for BM-230B **For current products:** MEB-2300 **Packing unit:** 3 pcs R	
H852A	NE-132B	Reusable Evoked EEG Disk Electrodes Kit, Ag, shielded cables, keyhole connector, electrode cable length: 1.5 m Note: Kit contains 5 x disk electrodes & 1 x jumper cable K617C. **For current products:** MEB-9400/2300 **Packing unit:** 1 kit R	
H854	NE-142B	Reusable Evoked EEG Disk electrodes Kit, Ag, shielded cables, keyhole connector, for ABR, electrode cable length: 0.5 m Note: Kit contains 5 x disk electrodes & 1 x jumper cable K617C. **For current products:** MEB-9400/2300 **Packing unit:** 1 kit R	
H851	NE-121J	Reusable Evoked EEG Disk Electrodes Kit, Ag, shielded cables, 2 mm connector, electrode cable length: 1.5 m Note: Kit contains 5 x disk electrodes & 1 x jumper cable K617. **For old products:** MEB-5200/5300/7102 **Packing unit:** 1 kit R	
H851A	NE-131B	Reusable Evoked EEG Disk Electrodes Kit, Ag, shielded cables, 1.5 mm touch proof connector, electrode cable length: 1.5 m Note: Kit contains 5 x disk electrodes & 1 x jumper cable K617B. **For old products:** MEB-2200/9100/9200 **Packing unit:** 1 kit R	
H852	NE-121B	Reusable Evoked EEG Disk Electrodes Kit, Ag, shielded cables, 2 mm connector, electrode cable length: 1.5 m Note: Kit contains 5 x disk electrodes & 1 x jumper cable K617A. **For old products:** MEB-4200/5500 **Packing unit:** 1 kit R	

D Disposable accessories are intended **for single use** only, on one patient, during a single examination! Do not reuse disposable accessories!

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Supply Code	Model	Description	
K626	BM-910B	EP Connection Cable for H854, shielded, 9-PIN DIN round connector, cable length: 3.0 m **For current products:** MEB-9400 **Packing unit:** 1 pcs R	
K617	2114-064171	EMG Jumper Cable for H851, 2 mm dia 1-PIN connector, unshielded, cable length: 0.15 m **For old products:** MEB-5200/5300/7102 **Packing unit:** 5 pcs R	
K617A	NE-420B	EMG Jumper Cable for H852, 2 mm dia 2-PIN connector, unshielded, cable length: 0.15 m **For old products:** MEB-4200/5500 **Packing unit:** 5 pcs R	
K617B	NE-430B	EMG Jumper Cable for H851A, 1-PIN DIN round connector, unshielded, cable length: 0.15 m **For current products:** MEB-2200/9100/9200 **Packing unit:** 5 pcs R	
K617C	NE-432B	EP Jumper Cable for H852A/H854, 2-PIN DIN keyhole connector, unshielded, cable length: 0.15 m **For current products:** MEB-9400/2300 **Packing unit:** 5 pcs R	

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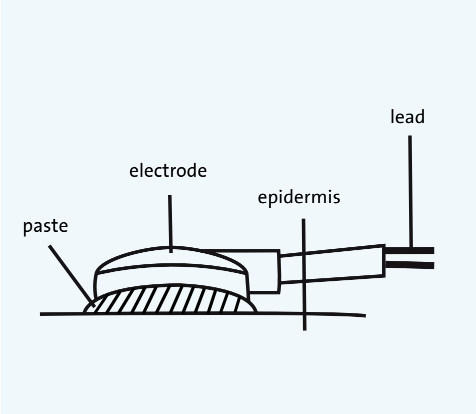
R Reusable accessories are intended for repeated patient use on different patients during different examinations. Please make sure to clean reusable accessories after each patient or between different applications to prevent or reduce the risk of cross infections!

2.2. EEG Electrodes

Facts

Attaching the electrodes

1. To reduce the skin impedance, clean the electrode sites with a cotton pad moistened with alcohol or rub them with skinPure skin preparation gel (F020). Thoroughly dry the skin with dry gauze.
2. Apply an optimal amount of Elefix EEG conduction paste (F509 or F510) to the cleaned sites and rub the paste around the sites in a circle not larger than 10 mm in diameter.
3. Apply Elefix EEG conduction paste about 1 mm thick to the disk (cup) of the electrode, and attach it on the pasted skin sites.
4. Cover the electrode with a piece of cotton, and press the edge of the cotton. Fasten the electrode on the site with surgical tape if necessary.
5. Connect the electrode leads to the corresponding input jacks on the electrode junction box.



Supply Code	Model	Description
H503A	NE-113A	EEG Surface Electrode for EOG & EMG, Ag, size: 11 mm dia, with brown plastic covering, 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** EEG-1200/9100; MEE-1000; MEB-2300 **Packing unit:** 26 pcs R
H503B	NE-114A	EEG Surface Electrode for EOG & EMG, Ag, size: 11 mm dia, 1.5 mm touch proof connector, cable length: 0.8 m **For current products:** EEG-1200/9100; MEE-1000; MEB-2300 **Packing unit:** 26 pcs R



Supply Code	Model	Description
H526	NE-134A	EEG Electrode (Collodion), Ag, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** EEG-1200/9100; BSM-3000/6000/9100; PSG-1100; MEB-2300; MEE-1000 **Packing unit:** 12 pcs R
H527	NE-136A	EEG Electrode (Collodion), Ag, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 0.7 m **For current products:** EEG-1200/9100; BSM-3000/6000/9100; PSG-1100; MEB-2300; MEE-1000 **Packing unit:** 12 pcs R





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3. Electrodes for Nerve Conduction Studies (NCS)

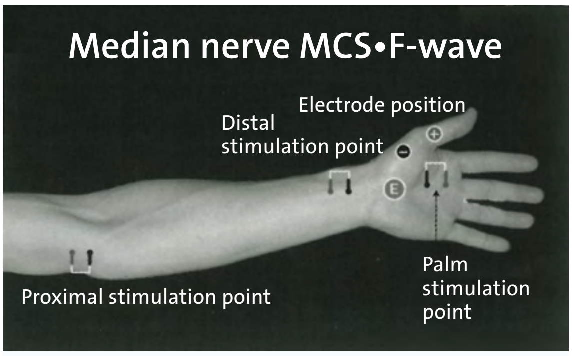
Nerve Conduction Studies (NCS) measure the conduction rapidity of an electrical impulse through a nerve. Usually the test is done with two surface electrodes. One electrode is directly attached over the identified nerve stimulates the nerve with a soft electrical impulse. The other electrode, placed over the muscle controlled by this nerve, records the time the muscle needs to contract as well as the signal quality sent between both electrodes in response to this electrical stimulation. The response speed is called the conduction velocity.

Contrary to EMG studies which detect the proper functionality of muscles on nerve stimulations (muscle disorders), NCS examine disorders of the peripheral nervous system. Both measurements combined, assist to sense the existence, place and degree of disorder that injure the nerves and muscles.

3.1. Stimulation Electrodes

3.2. Finger Electrodes

3.3. Surface Electrodes



- Electrode position
  - Active electrode (+): belly of abductor pollicis brevis.
  - Reference electrode (–): joint of thumb finger.
- Stimulation point
  - Palm stimulation point: center of palm, set cathode to proximal.
  - Distal stimulation point: between the tendons of the palmaris longus and flexor carpi ulnaris. Keep the distance equally at every study.
  - Proximal stimulation point: just lateral to the brachial artery.
- F-wave

  Electrode position is the same as MCS. Cathode of stimulus is on proximal side.

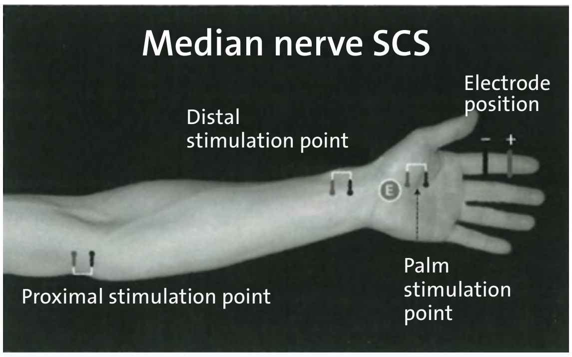
Median nerve MCS normative data (Kimura 1983)

Stimulation point	Amplitude (mV) Mean±SD (lower limit)	Latency (ms) Mean±SD (uppepr limit)	Conduction velocity (m/s) Mean±SD (lower limit)
Palm	6.9±3.2 (3.5)	1.86±0.28 (2.4)	48.8±5.3 (38)
Distal	7.0±3.0 (3.5)	3.49±0.34 (4.2)	57.7±4.9 (48)
Proximal	7.0±2.7 (3.5)	7.39±0.69 (8.8)	63.5±6.2 (51)
Axilla	7.2±2.9 (3.5)	9.81±0.89 (11.6)	

Note: Amplitude is the potential between the negative peak of the waveform and the baseline.

Median nerve F-wave normative data (Kimura 1983)

Stimulation point	Latency (ms) Mean±SD (uppepr limit)	Conduction velocity (m/s) Mean±SD (lower limit)
Distal	26.6±2.2 (31)	65.3±4.7 (56)

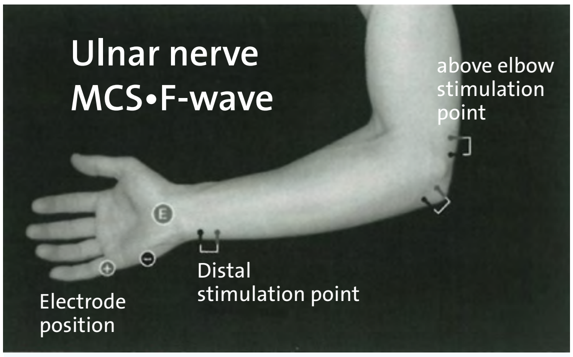


- Electrode position
  - Active electrode (+): PIP joint of index finger.
  - Reference electrode (–): DIP point of index finger.
- Stimulation point
  - Palm stimulation point: center of palm, set cathode to distal.
  - Distal stimulation point: between the tendons of the palmaris longus. and flexor carpi ulnaris. Keep the distance equally at every study.
  - Proximal stimulation point: just lateral to the brachial artery.

Median nerve SCS normative data (Kimura 1983)

Stimulation point	Amplitude (mV) Mean±SD (lower limit)	Latency (ms) Mean±SD (uppepr limit)	Conduction velocity (m/s) Mean±SD (lower limit)
Palm	39.0±16.8 (20)	1.37±0.24 (1.9)	58.8±5.8 (47)
Distal	38.5±15.6 (19)	2.84±0.34 (3.5)	56.2±5.8 (44)
Proximal	32.0±15.5 (16)	6.46±0.71 (7.9)	61.9±4.2 (53)

Note: Amplitude is the potential between the negative peak of the waveform and the baseline.



- Electrode position
  - Active electrode (+): Belly of ADM (Abductor Digiti Minimi).
  - Reference electrode (–): MP joint of the 5th finger.
- Stimulation point
  - Distal stimulation point: just over or lateral to the flexor carpi ulnaris. Keep the distance equally at every study.
  - Below elbow stimulation point: 5 - 6 cm distal to the groove for ulnar nerve.
  - Above elbow stimlation point: 5 - 6 cm proximal to the groove.
- F-wave

  Electrode position is the same as MCS. Cathode of stimulus is on proximal side.

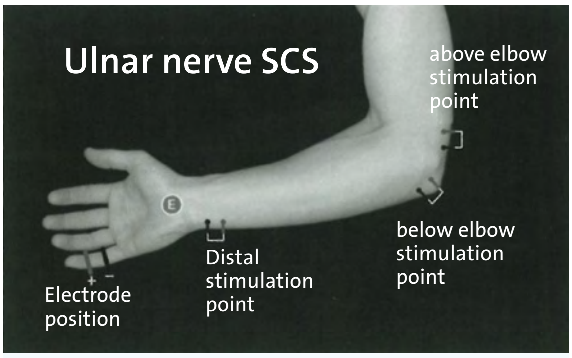
Ulnar nerve MCS normative data (Kimura 1983)

Stimulation point	Amplitude (mV) Mean±SD (lower limit)	Latency (ms) Mean±SD (uppepr limit)	Conduction velocity (m/s) Mean±SD (lower limit)
Distal	5.7±2.0 (2.8)	2.59±0.39 (3.4)	58.7±5.1 (49)
Below elbow	5.5±2.0 (2.7)	6.10±0.69 (7.5)	61.0±5.5 (50)
Above elbow	5.5±1.9 (2.7)	8.04±0.76 (9.6)	66.5±6.3 (54)
Axilla	5.6±2.1 (2.7)	9.90±0.91 (11.7)	

Note: Amplitude is the potential between the negative peak of the waveform and the baseline.

Ulnar nerve F-wave normative data (Kimura 1983)

Stimulation point	Latency (ms) Mean±SD (uppepr limit)	Conduction velocity (m/s) Mean±SD (lower limit)
Distal	27.6±2.2 (32)	65.3±4.8 (55)

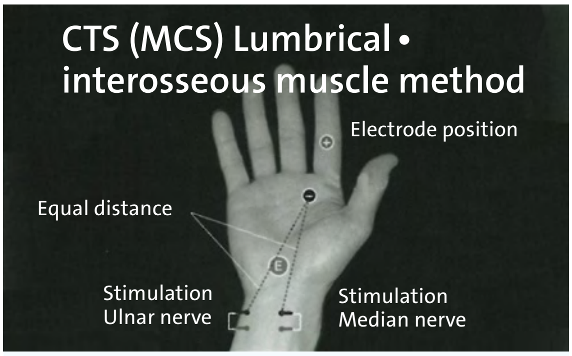


- Electrode position
  - Active electrode (+): PIP joint of 5th finger.
  - Reference electrode (–): DIP joint of 5th finger.
- Stimulation point
  - Distal stimulation point: just over or lateral to the flexor carpi ulnaris Keep the distance equally at every study.
  - Below elbow stimulation point: 5 - 6 cm distal to the groove for ulnar nerve.
  - Above elbow stimlation point: 5 - 6 cm proximal to the groove for ulnar nerve.

Ulnar nerve SCS normative data (Kimura 1983)

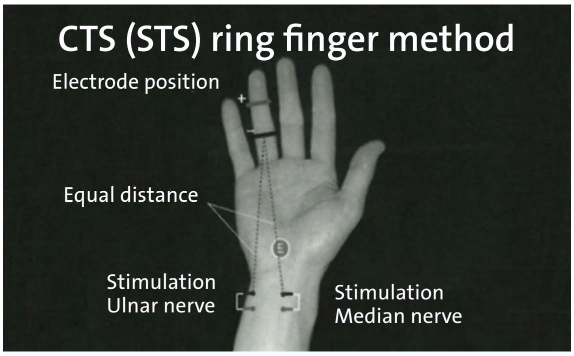
Stimulation point	Amplitude (mV) Mean±SD (lower limit)	Latency (ms) Mean±SD (uppepr limit)	Conduction velocity (m/s) Mean±SD (lower limit)
Distal	35.0±14.7 (18)	2.54±0.29 (3.1)	54.8±5.3 (44)
Below elbow	28.8±12.2 (15)	5.67±0.59 (6.9)	64.7±5.4 (53)
Above elbow	28.3±11.8 (14)	7.46±0.64 (8.7)	66.7±6.4 (54)

Note: Amplitude is the potential between the negative peak of the waveform and the baseline.



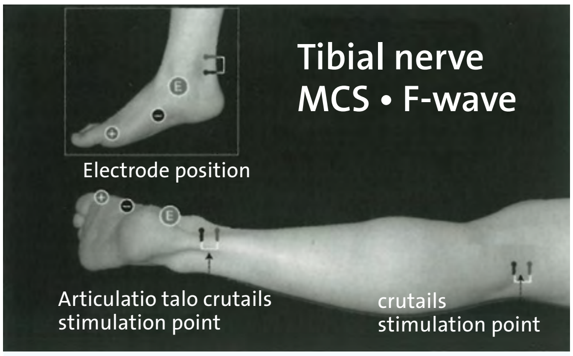
- Electrode position
  - Active electrode (+): 2 cm proximal from interdigit index finger and middle finger.
  - Reference electrode (–): PIP joint of index finger.
- Stimulation point
  - Median and Ulnar nerve, equal distance to the active electrode

Lumbrical muscle interosseous muscle motor conduction study is a very sensitive method for CTS (carpal tunnel syndrome). An active electrode placed as shown in the figure both picks up compound muscle action potential form 2nd lumbrial muscle innervated by median nerve and interosseous muscle innervated by ulnar nerve. Stimulation is applied an equal distance on median and ulnar nerve to the active electrode. Compare the latency of each CMAPS, then difference between them is higher than 0.5 ms suggestes CTS.



- Electrode position
  - Active electrode (+): PIP joint of ring finger.
  - Reference electrode (–): DIP joint of ring finger.
- Stimulation point
  - Median and Ulnar nerve, equal distance to the active electrode.

Ring finger method is another sensitive method for CTS. A ring electrode is placed on the ring finger as shown in the figure. The radial side of ring finger is innervated by median nerve, ulnar side is by ulnar nerve. As for lumbrical muscle use the interosseous muscle method, and stimulate the median nerve and ulnar nerve at equal distance to the active electrode. Compare each SNAP latency and mesure the difference. If it is higher than 0.5 ms, it suggests CTS.



- Electrode position
  - Active electrode (+): Belly of the abductor hallucis muscle (AH).
  - Reference electrode (–): Joint of large toe (hallux).
- Stimulation point
  - Articulatio talo crutalis stimulation point: posterior boarder of malleolus medalis. Keep the distance between the cathode stimulation point and active electrode to compare with the distal latency.
  - Distal: 10 cm proximal from the active electrode.
  - Articulatio genus stimulation point: The central portion of the popliental fossa.
- F-wave

  The electrode position is the same as that of MCS. Cathode of stimulus is on proximal side.

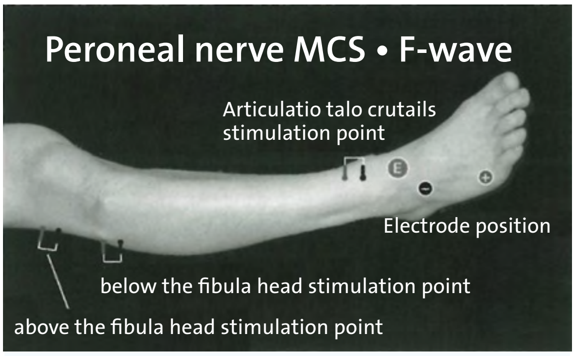
Tibial nerve MCS normative data (Kimura 1983)

Stimulation point	Amplitude (mV) Mean±SD (lower limit)	Latency (ms) Mean±SD (uppepr limit)	Conduction velocity (m/s) Mean±SD (lower limit)
Distal stimulation point	5.8±1.9 (2.9)	3.96±1.00 (6.0)	48.5±3.6 (41)
Proximal stimulation point	5.1±2.2 (2.5)	12.05±1.53 (15.1)	

Note: Amplitude is the potential between the negative peak of the waveform and the baseline.

Tibial nerve F-wave normative data (Kimura 1983)

Stimulation point	Latency (ms) Mean±SD (uppepr limit)	Conduction velocity (m/s) Mean±SD (lower limit)
Articulatio talo crutalis	47.7±5.0 (58)	52.6±4.3 (44)



- Electrode position
  - Active electrode (+): Belly of the extensor digitorum brevis muscle (EDB).
  - Reference electrode (–): Joint of little toe (digitus minimus).
- Stimulation point
  - Articulatio talo crutalis stimulation point: lateral to the tibialis anterior tendon. Keep the distance between the cathode stimulation point and active electrode to compare with the distal latency.
  - Stimulation point below the fibula head: 2 cm distal to the fibula head.
  - Stimulation point above the fibula head: 10 cm proximal to the fibula. head just medial to the end of the biceps femoris tendon.
- F-wave

  The electrode position is the same as that of MCS. Cathode of stimulus is on proximal side.

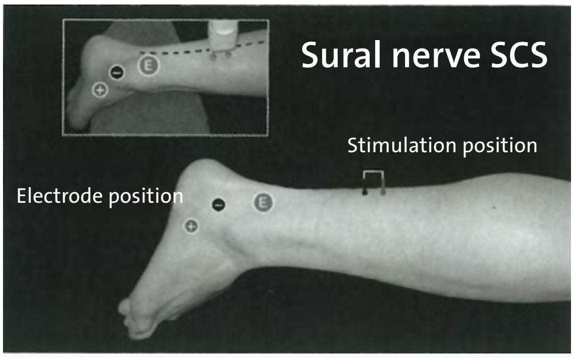
Peroneal nerve MCS normative data (Kimura 1983)

Stimulation point	Amplitude (mV) Mean±SD (lower limit)	Latency (ms) Mean±SD (uppepr limit)	Conduction velocity (m/s) Mean±SD (lower limit)
Articulatio talo crutalis	5.1±2.3 (2.5)	3.77±0.86 (5.5)	48.3±3.9 (40)
Below the fibula head	5.1±2.0 (2.5)	10.79±1.06 (12.9)	52.0±6.2 (40)
Above the fibula head	5.1±1.9 (2.5)	12.51±1.17 (14.9)	

Note: Amplitude is the potential between the negative peak of the waveform and the baseline.

Peroneal nerve F-wave normative data (Kimura 1983)

Stimulation point	Latency (ms) Mean±SD (uppepr limit)	Conduction velocity (m/s) Mean±SD (lower limit)
Articulatio talo crutalis	48.4±4.0 (56)	49.8±3.6 (43)



- Electrode position
  - Active electrode (+): Posterior to the lateral malleolus one third of the distance to the lateral malleolus along the line drawn between theheel and the malleolus.
  - Reference electrode (–): A disk electrode is placed 3 cm distal to the active electrode.
- Stimulation point

  14 cm proximal to the active electrode and 1 to 2 cm lateral to the Achilles tendon.

Sural nerve SCS normative data (Kimura 1983)

Stimulation point	Age	Amplitude (mV) Mean±SD	Latency (ms) Mean±SD	Conduction velocity (m/s) Mean±SD
Wrist joint	10-40	20.9±8.0	2.7±0.3	52.5±5.6
	41-84	17.2±6.7	2.8±0.3	51.1±5.9

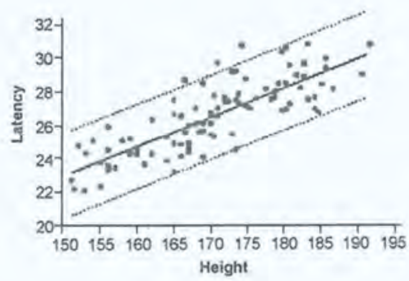
Note: Amplitude is the potential between the negative peak of the waveform and the baseline.

Correlation between F-wave minimum latency and height

Ulnar nerve Correlation between F-wave minimum latency and height (Distal stimulation at upper extremity)

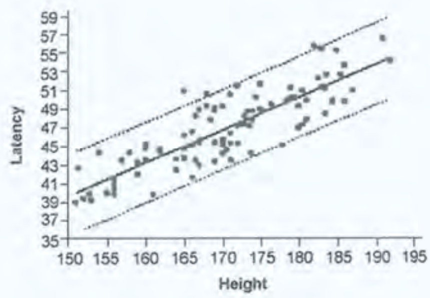
F-wave minimum latency has a strong correlation with height, and you have to consider the patient´s height when refering to average value.

Ulnar nerve F-wave Minimum Latency



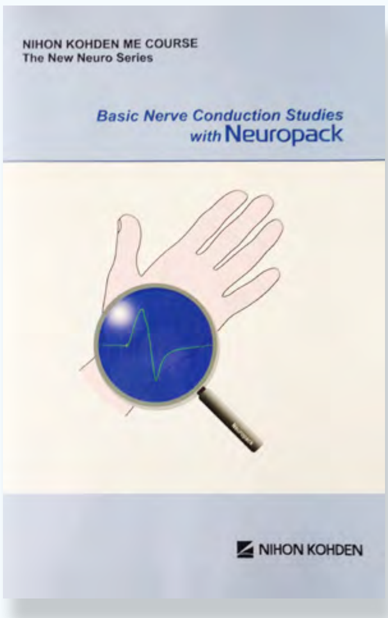
Tibial nerve Correlation between F-wave minimum latency and height (Distal stimulation at lower extremity)

Tibial nerve F-wave Minimum Latency



Reference: Nobrega J. A. M., Pinheiro D. S., Manzano G. M. Jun Kimura, Various aspects of F-wave values in healthy population, Clinical Neurophysiology 115 (2004) 2336-2342.

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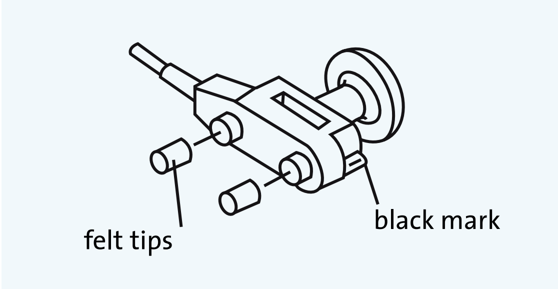
For a deeper inside in nerve conduction recor-ding you can order the NIHON KOHDEN book about Basic Nerve Con-duction Studies free of charge (supply code: SP58-006 ’09.02.NV.B). Please contact us or one of our representatives.

3.1. Stimulation Electrodes

Facts

Attaching the electrodes

1. Connect the electrode connector to the stimulation output connector of the device.
2. For stable measurement, rub the sites with a cotton pad moistened with alcohol or rub them with skinPure skin preparation gel (F020).
3. Soak the felt tips in water or physiological salt solution.
4. Push the two soaked felt tips into each pad holder.
5. Press the electrode against the skin site and fasten it with a provided band. The side with the black mark is the negative electrode.



Cleaning

1. If you leave the electrode after use without cleaning, it will rust and the performance of the electrode will deteriorate. Clean the electrode immediately after use.
2. Remove the felt tips from the electrode and wash the electrode with lukewarm water.
3. Do not wash with hot water or chlorine bleach!
4. Thoroughly wipe off moisture and keep the electrode dry and clean.

Supply Code	Model	Description	
H635	NM-410S	Reusable Surface Stimulation Electrode, child, electrode: felt, electrode difference: 10 mm, size: 4 mm dia, incl. 10 felt tips type H647 & 2 Velcro bands for child foot/hand, 5-PIN DIN round connector, cable length: 2.0 m Foot band: width: 7 mm, length: 58 cm Hand band: width: 7 mm, length: 28 cm Note: YZ-0172 is required for MEB-9200/9400. **For current products:** MEB-9400/2300 **Packing unit:** 1 kit R	
H636	NM-420S	Reusable Surface Stimulation Electrode, adult, electrode: felt, electrode difference: 23 mm, size: 8 mm dia, incl. 10 felt tips type H646 & 2 Velcro bands for adult foot/hand, 5-PIN DIN round connector, cable length: 2.0 m Foot band: width: 1.5 cm, length: 78 cm Hand band: width: 1.5 cm, length: 38 cm Note: YZ-0172 is required for MEB-9200/9400. **For current products:** MEB-9400/2300 **Packing unit:** 1 kit R	
H646	6143-009402	Felt Tips for H636, large **For current products:** MEB-9400/2300 **Packing unit:** 100 pcs	
H647	6143-009411	Felt Tips for H635, small **For current products:** MEB-9400/2300 **Packing unit:** 100 pcs	
2114-080955		Reusable Metal Tips for Stimulation Electrode H636, for long-term stimulation in OR, alternative to H646 **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	

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Facts

Attaching the electrodes

1. Connect the electrode connector to the stimulation output connector of the device.
2. For stable measurement, rub the sites with a cotton pad moistened with alcohol or rub them with skinPure skin preparation gel (F020).
3. Apply a small amount of Elefix EEG conduction paste (F509 or F510) to the tip of the electrode.
4. Press the electrodes against the skin sites and fasten it with a provided band. The side with the black mark is the negative electrode.

Cleaning

1. If you leave the electrodes after use without cleaning, the paste will harden and the performance of the electrode will deteriorate.
2. Wipe the electrodes with a clean cloth immediately after use.

Supply Code	Model	Description
H639	NM-422B	Reusable Surface Stimulation Electrode, electrode: stainless steel, electrode difference: 23 mm, cable length: 2.0 m, Velcro bands for adult foot/hand, band width: 1.5 cm, band length: 38 cm **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R



Supply Code	Model	Description
NKD-STL		Reusable Surface Stimulation Electrode, electrode: felt, electrode difference: 20 mm incl. 10 x disposable felt tips with size: 7 x 20 mm & 1 x elastic fixing band of 42 cm with 5-PIN DIN round connector, cable length: 1.5 m **For current products:** MEB-9400/2300 **Packing unit:** 1 kit R
NKD-STL-BAND		Reusable Elastic Fixing Band for NKD-STL, 5-PIN DIN round connector, length: 42 cm, width: 2 cm **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R
NKD-STLF		Felt Tips for NKD-STL, size: 7 x 20 mm **For current products:** MEB-9400/2300 **Packing unit:** 10 pcs







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3.2. Finger Electrodes

Facts

Finger electrodes are used for stimulation and recording of sensory nerves in finger or toe to detect e.g. the carpal tunnel syndrome (CTS).

1. **When used as a stimulation electrode:**
   Connect the electrode connectors to the stimulation output connectors of the device. For H653 (NM-450S) the adapter YZ-0172 is necessary.
   When used as a recording electrode:
   Connect the electrode connectors to the electrode lead jacks on the electrode junction box or the extension cable.
2. For stable measurement, rub the attachment sites with a cotton pad moistened with alcohol or skinPure skin preparation gel (F020).
3. Apply an optimal amount of Elefix EEG conduction paste (F509 or F510) to the finger and put the finger through the electrodes. The black part is the negative electrode. Attach the black part at the base of the finger.

Cleaning

1. If you leave the electrode after use without cleaning, the paste will harden and the performance of the electrode will deteriorate.
2. Wipe the electrode with a clean cloth immediately after use.

Supply Code	Model	Description	
H653	**NM-450S**	Reusable Finger Electrode, stainless steel, 5-PIN DIN round connector, max. loop length: 25 mm, cable length: 2.0 m Note: Suitable as recording and stimulation electrode! **For current products:** MEB-9400/2300 **Packing unit:** 1 pair R	 
H659	**NM-451B**	Reusable Finger Electrode for BM-230B, stainless steel, 2x 1.5 mm touch proof connector, max. loop length: 140 mm, cable length: 0.3 m Note: Suitable as recording and stimulation electrode! **For current products:** MEB-2300 **Packing unit:** 1 pair R	
YZ-0172		Adapter for Stimulation/Finger Electrodes, 5-PIN DIN connector (female) to stimulation output with 8-PIN DIN connector (male) **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	

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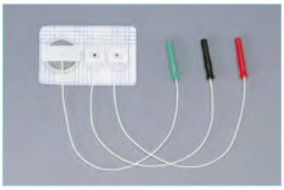
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3.3. Surface Electrodes

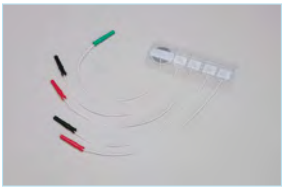
Surface electrodes are used to observe the general surface muscle activation instead of single muscle fibres. A proper skin preparation is essential for good signals and no artefacts. The electrodes' position for the defined muscle should be determined with caution as the location is important to obtain accurate signals. If the electrodes are located on a nearby muscle than the targeted one, the EMG signal could show up a mixed action potential picture. The direction of the electrodes should be set with the direction of the muscle fibres and the reference electrode needs to be placed on electrically neutral position.

3.3.1. Disposable Surface Electrodes

Supply Code	Model	Description
H690	NM-317Y3	Disposable NCS Electrodes, 2 recording electrodes (1 x black, 1 x red, size of electrodes: 14 x 25 mm) & 1 ground electrode (green, size of electrode: Phi=28 mm), cable length: 0.2 m, 1.5 mm touch proof connector, cable length: 0.2 m, requires K625A/K625B/BM-230B **For current products:** MEB-9400/2300 **Packing unit:** 10 x 3 pcs D
H691	NM-319Y	Disposable NCS Electrodes, 4 recording electrodes (2 x black, 2 x red, size of electrodes: 14 x 25 mm), cable length: 0.2 m, 1.5 mm touch proof connector, requires K625A/K625B/BM-230B **For current products:** MEB-9400/2300 **Packing unit:** 10 x 4 pcs D
H692	NM-316Y	Disposable NCS Electrodes, 4 recording electrodes (2 x black, 2 x red, size of electrodes: 14 x 25 mm) & 1 x ground electrode (green, size of electrode: Phi=28 mm), cable length: 0.2 m, 1.5 mm touch proof connector, requires K625A/K625B/BM-230B **For current products:** MEB-9400/2300 **Packing unit:** 10 x 5 pcs D



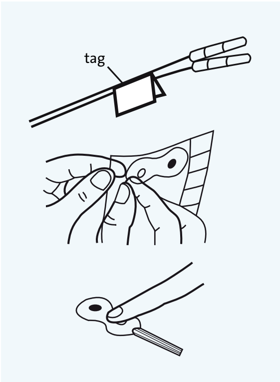




Facts

Attaching the electrodes

1. To reduce the skin impedance, clean the electrode sites with a cotton pad moistened with alcohol or rub them with skinPure skin preparation gel (F020). Thoroughly dry the skin with dry gauze.
2. Thoroughly dry the skin with a clean cotton pad. Residual sweat, moisture or skinPure will reduce the adhesive properties of the electrode.
3. Write down the attachment sites on the tag of the electrode and attach the tag to the lead near the con-nector to distinguish the electrode.
4. Remove the electrode from the backing sheet. Avoid touching the adhesive surface.
5. Press one edge of the electrode down on the proposed measuring site and then continue to apply the rest of the electrode in the same manner.
6. Press the electrode firmly with a finger for secure contact.
7. Connect the electrode lead to the connection cable.



Supply Code	Model	Description
H694A	NM-314YS	Disposable NCS Electrodes, 4 MEP/SEP electrodes, size: 27 x 61 mm, black/grey, 1.5 mm touch proof connector, cable length: 0.2 m, requires K625A/K625B/K629A Note: Intended use is recording! Connector: black: – pole, beige: + pole **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 10 x 4 pcs D
H694B	NM-314YL	Disposable NCS Electrodes, 4 MEP/SEP electrodes, size: 27 x 61 mm, black/grey, 1.5 mm touch proof connector, cable length: 1.8 m, requires K625A/K625B/K629A Note: Intended use is recording! Connector: black: – pole, beige: + pole **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 10 x 4 pcs D



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Supply Code	Model	Description	
NKD-NCSD1		Ambu Disposable NCS & EP Electrodes, Ag/AgCl, size: 15 x 20 mm, 1.5 mm touch proof connector, cable length: 0.1 m **For current products:** MEB-9400/2300 **Packing unit:** 12 pcs D	
NKD-NCSD2		Ambu Disposable NCS & EP Electrodes, Ag/AgCl, size: 15 x 20 mm, 1.5 mm touch proof connector, cable length: 0.5 m **For current products:** MEB-9400/2300 **Packing unit:** 12 pcs D	
K625A	BM-001B	NCS Connection Cable for NCS Electrodes H69x, electrode side: 3 x 1.5 mm touch proof connector, device side: 6-PIN DIN round connector, cable length: 1.5 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	
K625B	BM-002B	NCS Connection Cable for NCS Electrodes H69x, electrode side: 2 x 1.5 mm touch proof connector, device side: 6-PIN DIN round connector, cable length: 1.5 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	
K625C	BM-003B	NCS Connection Cable for NCS Electrodes H69x, electrode side: 3 x 1.5 mm touch proof connector, device side: 6-PIN DIN round connector, cable length: 3.5 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	
K625D	BM-004B	NCS Connection Cable for NCS Electrodes H69x, electrode side: 2 x 1.5 mm touch proof connector, device side: 6-PIN DIN round connector, cable length: 3.5 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	
K629A	BM-990B	Stimulation Extension Cable for NCS Electrodes H69x, electrode side: 2 x 1.5 mm touch proof connector, device side: 5-PIN DIN round connector, cable length: 3.5 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	
K636	BM-005B	Extension Cable for 2 Bipolar Electrodes, 2 signal parallel cable for epidural catheter, 2 x 1.5 mm touch proof connector male type and 2 x 1.5 mm touch proof connector female type, cable length: 3.5 m **For current products:** MEE-1000; MEB-2300 **Packing unit:** 1 pcs R	

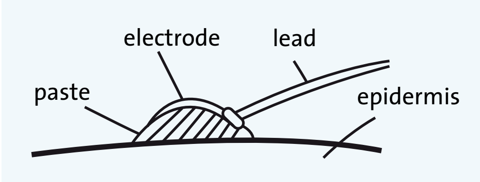
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3.3.2. Reusable Surface Electrodes

Facts

Attaching the electrodes



1. Connect the electrode leads to the corresponding input jacks.
2. To reduce impedance, clean the ele trode sites with a cotton pad moistened with alcohol or rub them with skinPure skin preparation gel (F020).
3. Apply an optimal amount of cardioCream (F010), electrolyte cream, to the cleaned sites and rub the paste around the site in a circle not larger than 10 mm in diameter.
4. Apply an optimal amount of Elefix EEG conduction paste (F509 or F510) to the disk (cup) of the electrode and attach it on the pasted skin sites as shown below. The black part is the negative electrode.
5. Cover the electrode with a piece of cotton and gently press the edge of the cotton. Fasten the electrode on the sites with surgical tape if necessary.

Supply Code	Model	Description
H634	NM-312S	Reusable Surface Electrodes, Ag/AgCl, size: 1 cm dia, 6-PIN DIN round connector, cable length: 1.43 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pair R
H638	NM-315S	Reusable Surface Electrodes, Ag/AgCl, size: 1 cm dia, 6-PIN DIN round connector, cable length: 2.3 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pair R



Supply Code	Model	Description
K637	BM-312B	Extension Cable for Surface Electrode H634, shielded, electrode side: 2 x alligator clip, device side: 6-PIN DIN connector, cable length: 3.5 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R
K638A	BM-900B	Adapter Cable for H634/K611, electrode side: 6-PIN DIN connector, device side: 2 x 1.5 mm touch proof connector, cable length: 0.3 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R
K638B	BM-901B	Adapter Cable for H634/K611, electrode side: 6-PIN DIN connector, device side: 2 x 1.5 mm touch proof connector, cable length: 0.3 m **For current products:** MEE-1000 **Packing unit:** 1 pcs R

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4. EMG Ground Electrodes

The ground electrode is a reference electrode to the recording electrode. Usually this electrode is placed away from the recording electrode on a neutral position. During electrical stimulation however, the ground electrode is located between the stimulating and recording electrode to reduce artefacts. For acoustic or visual stimulation the grounding is usually done on the forehead. It is important to have the most possible skin-electrode contact. Therefore a large electrode is preferred.

4.1. Disposable EMG Ground Electrodes

4.2. Reusable EMG Ground Electrodes

4.1. Disposable EMG Ground Electrodes

Facts

Attaching the electrodes

1. To reduce the skin impedance, clean the electrode sites with a cotton pad moistened with alcohol or rub them with skinPure skin preparation gel (F020). Thoroughly dry the skin with dry gauze.
2. Thoroughly dry the skin with a clean cotton pad. Residual sweat, moisture or skinPure will reduce the adhesive properties of the electrode.
3. Write down the attachment sites on the tag of the electrode and attach the tag to the lead near the connector to distinguish the electrode.
4. Remove the electrode from the backing sheet. Avoid touching the adhesive surface.
5. Press one edge of the electrode down on the proposed measuring site and then continue to apply the rest of the electrode in the same manner.
6. Press the electrode firmly with a finger for secure contact.
7. Connect the electrode lead to the connection cable.

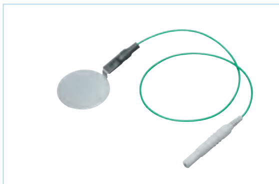
Supply Code	Model	Description
H693	NM-310Y	Large Disposable NCS Ground Electrode, size: 42 x 84 mm, grey, 1.5 mm touch proof connector, cable length: 1.8 m, requires K625A/K625B/K629A Note: Intended use is grounding! **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 10 pcs D



4.2. Reusable EMG Ground Electrodes

Supply Code	Model	Description
H658	NM-550B	Reusable Metal Plate Ground Electrode, stainless steel, size: 30 mm dia, 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R
H658A	NM-551B	Reusable Metal Plate Ground Electrode, stainless steel, size: 30 mm dia, 1.5 mm touch proof connector, cable length: 0.3 m, for BM-230B **For current products:** MEB-2300 **Packing unit:** 1 pcs R
H662	NM-501B	Reusable Ground Electrode, adult, wrist/ankle, keyhole connector, incl. 1 x cable 1.5 m & 1 x ground Velcro strap 45 cm **For current products:** MEB-9400 /2300 **Packing unit:** 1 pcs R
H662A	NM-506B	Reusable Ground Electrode, adult, wrist/ankle, keyhole connector, incl. 1 x cable 30 cm & 1 x ground Velcro strap 45 cm, for BM-230B **For current products:** MEB-2300 **Packing unit:** 1 pcs R









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Supply Code	Model	Description	
H663	NM-502B	Reusable Ground Electrode, adult, thigh, keyhole connector, incl. 1 x cable 1.5 m & 1 x ground Velcro strap 75 cm **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	
H664	NM-503B	Reusable Ground Electrode, child, wrist, keyhole connector, incl. 1 x cable 1.5 m & 1 x ground Velcro strap 31 cm **For current products:** MEB-9400 /2300 **Packing unit:** 1 pcs R	
H664A	NM-505B	Reusable Ground Electrode, child, wrist, keyhole connector, incl. 1 x cable 30 cm & 1 x ground Velcro strap 31 cm, for BM-230B **For current products:** MEB-2300 **Packing unit:** 1 pcs R	
H657	NM-540B	Reusable Metal Plate Ground Electrode, stainless steel, size: 30 mm dia, 2 mm connector, cable length: 1.5 m **For old products:** MEB-4200/5500/9100 **Packing unit:** 1 pcs R	
H654	NM-511S	Reusable Ground Electrode, child, wrist, size: 4 mm dia connector, incl. 1 x cable 1.5 m & 1 x ground Velcro strap 31 cm **For old products:** MEB-4200/5200/5300/7102 **Packing unit:** 1 pcs R	
H655	NM-522S	Reusable Ground Electrode, adult, arm/leg, size: 4 mm dia connector, incl. 1 x cable1.5 m & 1 x ground Velcro strap 45 cm **For old products:** MEB-4200/5200/5300/7102 **Packing unit:** 1 pcs R	
H656	NM-531S	Reusable Ground Electrode, adult, thigh, size: 4 mm dia connector, incl. 1 x cable 1.5 m & 1 x ground Velcro strap 75 cm **For old products:** MEB-4200/5200/5300/7102 **Packing unit:** 1 pcs R	

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5. Additional EMG Accessories

5.1. Acoustic Stimulation

5.2. Visual Stimulation

5.3. Temperature Measurement

5.4. Pastes & Creams

5.5. Recording Paper

5.6. Cables

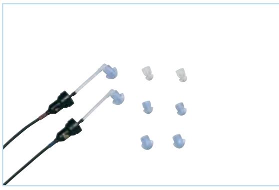
5.7. Adapter

5.1.
Acoustic Stimulation

Supply Code	Model	Description
Y849A	DR-531B-14	Headphone, adult, 5-PIN XLR connector, cable length: 3.0 m, 2-channel, band width: 160 mm, pad size: 117 × 92 mm **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R
Y849B	DR-531B-15	Headphone, child, 5-PIN XLR connector, cable length: 3.0 m, 2-channel, band width: 110 mm, pad size: 70 x 70 mm **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R
Y848A	DR-531B-10B	Headphone, adult, 4-PIN XLR connector, cable length: 3.0 m, 2-channel, band width: 160 mm, pad size: 117 x 92 mm **For old products:** MEB-2200/5500/7202 **Packing unit:** 1 pcs R
Y849C	RP-86004	Ear Pads for Headphone Y848A/Y849A, adult, size: 11.7 x 9.2 cm **For current products:** MEB-9400/2300; MEE-1000 **For old products:** MEB-2200 **Packing unit:** 2 pcs R
Y849D		Ear Pads for Headphone Y848A/Y849A, child, size: 8.0 cm dia **For current products:** MEB-9400/2300; MEE-1000 **For old products:** MEB-2200 **Packing unit:** 2 pcs R
HEAD-BAND/C		Headband for Headphone Y848A/Y849A, child, size: Phi=118mm **For current products:** MEB-9400/2300; MEE-1000 **For old products:** MEB-2200 **Packing unit:** 1 pcs R
HEAD BAND		Headband for Headphone Y848A/Y849A, adult, size: Phi=160 mm **For current products:** MEB-9400/2300; MEE-1000 **For old products:** MEB-2200 **Packing unit:** 1 pcs R
YE-103J		Earphones, 5-PIN DIN round connector, cable length: 3.0 m, supplied with 2 ear adapters in 5 different sizes each **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R

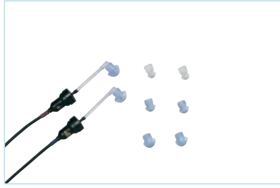
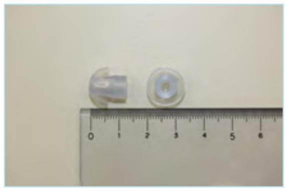
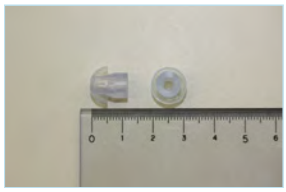
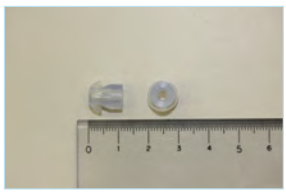




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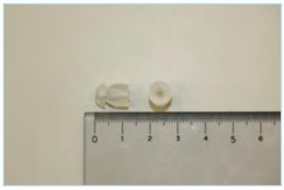
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Supply Code	Model	Description	
YE-102J		Earphones, child/adult, 4-PIN XLR connector, cable length: 3.0 m, supplied with 2 ear adapters in 5 different sizes each **For old products:** MEB-2200/4104/4200/5200/5300/5500/7103 **Packing unit:** 1 pcs R	
K635A	BM-701B	Extension Cable for YE-103J, cable length: 3.5 m **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R	
K635B	BM-702B	Extension Cable for LS-102J, cable length: 3.5 m **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R	
K101	RC-86014-H5P	Extension Cable for Headphone Y849A/B, 5-PIN connector, cable length: 3 m **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R	
K101B	RC-86014-R4C	Extension Cable for Headphone Y848A, 4-PIN connector, cable length: 3 m **For old products:** MEB-2200 **Packing unit:** 1 pcs R	
Y855A	YZ-002A3	Ear Pieces, large, for YE-102J/103J, requires Y855E **For current products:** MEB-2300; MEE-1000 **Packing unit:** 20 pcs D	
Y855B	YZ-002A4	Ear Pieces, medium, for YE-102J/103J, requires Y855E **For current products:** MEB-2300; MEE-1000 **Packing unit:** 20 pcs D	
Y855C	YZ-002A5	Ear Pieces, small, for YE-102J/103J, requires Y855E **For current products:** MEB-2300; MEE-1000 **Packing unit:** 20 pcs D	

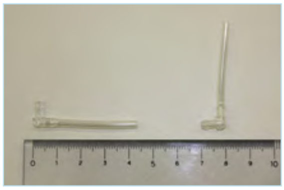
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Supply Code	Model	Description
Y855D	YZ-002A6	Ear Pieces, extra small, for YE-102J/103J, requires Y855E **For current products:** MEB-2300; MEE-1000 **Packing unit:** 20 pcs D



Supply Code	Model	Description
Y855E	YZ-002A7	Sound Conduction Tubes, for YE-102J/103J, necessary for ear pieces Y855x **For current products:** MEB-2300; MEE-1000 **Packing unit:** 10 pcs D



5.2. Visual Stimulation

Supply Code	Model	Description
LS-102J		LED Goggle, 4-PIN DIN connector, cable length: 3.0 m **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R



Supply Code	Model	Description
LS-101J		LED Goggle, 7-PIN DIN connector, cable length: 3.0 m **For old products:** MEB-2200/4200/5500 **Packing unit:** 1 pcs R



5.3. Temperature Measurement

Supply Code	Model	Description
NKD-P242B	YSI-409B	Body Surface Temperature Probe, 6.3 mm jack connector, disk size: 9.5 mm dia, cable length: 3.5 m Note: Use NKD-TEMPHEARTS4009/4012 to fix this probe! **For current products:** all BSM; PVM-2703; TEC-8300; MEB-9200/2300 **Packing unit:** 1 pcs R



Supply Code	Model	Description
NKD-TEMPHEARTS4009		Tempheart Adhesive Pads, to fix temperature probes, size: 1.5 cm dia **For current products:** all BSM; PVM-2703; TEC-8300; MEB-9200/2300 **Packing unit:** 100 pcs D



Supply Code	Model	Description
NKD-TEMPHEARTS4012		Mini-Tempheart Adhesive Pads, to fix temperature probes, size: 1.13 cm dia **For current products:** all BSM; PVM-2703; TEC-8300; MEB-9200/2300 **Packing unit:** 100 pcs D



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5.4. Pastes & Creams

Supply Code	Model	Description
F010	Z-101BC	cardioCream ECG Electrode Paste, 100 g tube **Packing unit:** 2 pcs D cardioCream
F020	YZ-0019	skinPure Skin Preparation Gel, reduces the electrode skin impedance, 135 g tube Note: Can be used with all surface applied electrodes. **Packing unit:** 2 pcs D skinPure





Facts

The NIHON KOHDEN electrode paste Elefix integrates outstanding sticking-qualities with an excellent electrical conductivity. Additionally Elefix has a creamy quality so that the electrodes can be attached firmly to the patient without additional fixation, on the other hand Elefix does not harden so that the electrodes can be removed without any problems even after longer examinations. The contact impedance between skin and electrode is greatly reduced. In addition, the signal transmission remains stable even underunfavourable external conditions. NIHON KOHDEN Elefix can be used with all surface applied electrodes.

Supply Code	Model	Description
F509	Z-181JE	Elefix EEG Conduction Paste, 180 g tube **Packing unit:** 1 pcs D Elefix
F510	Z-401CE	Elefix EEG Conduction Paste, 400 g cup **Packing unit:** 1 pcs D Elefix





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5.5. Recording Paper

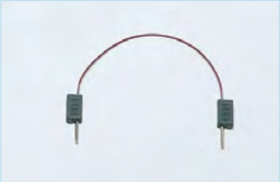


Supply Code	Model	Description
A720B	FQW210-10B	Thermal Paper, Z-fold, 210 mm x 100 m (page 300 mm), 333 pages, without grid, with queue mark/perforation **For old products:** MEB-4200; MEM-4104/4200 **Packing unit:** 5 pcs D
A725	FQW110-3-150	Recording Paper, Z-fold, 110 mm x 30 m (page 150 mm), 200 pages, without grid/queue mark/perforation **For old products:** MEB-4300/5304/5500/7102/7202; MEM-7202 **Packing unit:** 10 pcs D
A726	FQW110-2-150	Thermal Paper, Z-fold, 110 mm x 20 m (page 150 mm), 133 pages, without grid, with queue mark/perforation **For old products:** MEB-4300/5500 **Packing unit:** 10 pcs D
NKD-110-150	FQW110-3-150	Thermal Paper, Z-fold, 110 mm x 30 m (page 150 mm), 300 pages, without grid, with queue mark/perforation **For old products:** MEB-5300/7102; MEM-7102/7112 **Packing unit:** 1 pcs D
NKD-210-10/295		Thermal Paper, Z-fold, 210 mm x 100 m (page 295 mm), 339 pages, without grid, with queue mark/perforation, equivalent to A052 & NKD-210-10A **For current products:** ECG-1550/9320 **For old products:** MEB-4200; MEM-4100/4200 **Packing unit:** 10 pcs D

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5.6. Cables

Supply Code	Model	Description	
K617	2114-064171	EMG Jumper Cable for H851, 2 mm dia 1-PIN connector, unshielded, cable length: 0.15 m **For old products:** MEB-4200/5200/5300/7102 **Packing unit:** 5 pcs R	
K617A	NE-420B	EMG Jumper Cable for H852, 2 mm dia 2-PIN connector, unshielded, cable length: 0.15 m **For old products:** MEB-4200/5200/5300/7102 **Packing unit:** 5 pcs R	
K617B	NE-430B	EMG Jumper Cable for H851A, 1-PIN DIN round connector, unshielded, cable length: 0.15 m **For current products:** MEB-9400/2300 **Packing unit:** 5 pcs R	
K617C	NE-432B	EP Jumper Cable for H852A/H854, 2-PIN DIN keyhole connector, unshielded, cable length: 0.15 m **For current products:** MEB-9400/2300 **Packing unit:** 5 pcs R	

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Supply Code	Model	Description
K297A	EX212RE20	Extension Cable for Electrodes, shielded, 1.5 mm touch proof connector, colour: red, cable length: 2.0 m **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R
K297B	EX212YE20	Extension Cable for Electrodes, shielded, 1.5 mm touch proof connector, colour: yellow, cable length: 2.0 m **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R
K297C	EX212GR20	Extension Cable for Electrodes, shielded, 1.5 mm touch proof connector, colour: green, cable length: 2.0 m **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R
K297D	EX212WH20	Extension Cable for Electrodes, shielded, 1.5 mm touch proof connector, colour: white, cable length: 2.0 m **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R
K297E	EX212BK20	Extension Cable for Electrodes, shielded, 1.5 mm touch proof connector, colour: black, cable length: 2.0 m **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R
K297F	EX212BW20	Extension Cable for Electrodes, shielded, 1.5 mm touch proof connector, colour: brown, cable length: 2.0 m **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R
K297G	EX212PR20	Extension Cable for Electrodes, shielded, 1.5 mm touch proof connector, colour: purple, cable length: 2.0 m **For current products:** MEB-9400/2300; MEE-1000 **Packing unit:** 1 pcs R
K637	BM-312B	Extension Cable for Surface Electrode H634, shielded, electrode side: 2 x alligator clip, device side: 6-PIN DIN connector, cable length: 3.5 m **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R



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Supply Code	Model	Description	
K621A	**BM-503B**	Extension Cable for ECG Electrodes, unshielded, electrode side: alligator clip, device side: 1-PIN DIN connector, colours: red/green/yellow, cable length: 3.0 m **For current products:** MEE-1000 **Packing unit:** 3 pcs R	
K622A	**BM-504B**	Extension Cable for ECG Electrodes, shielded, electrode side: alligator clip, device side: 2-PIN DIN connector (keyhole), colours: red/green/yellow, cable length: 3.0 m **For current products:** MEB-9400/2300 **Packing unit:** 3 pcs R	
K634	**BM-121B**	Extension Cable for MS-120B, unshielded, multi-contact connector, cable length: 5.0 m **For current products:** MEE-1000 **Packing unit:** 1 pcs R	
K626	**BM-910B**	EP Connection Cable for H854, shielded, 9-PIN DIN round connector, cable length: 3.0 m **For current products:** MEB-9400 **Packing unit:** 1 pcs R	
K627	**BM-911B**	ARB Extension Cable, shielded, 9-PIN DIN round connector, cable length: 3.0 m **For current products:** MEB-9400 **Packing unit:** 1 pcs R	

5.7. Adapter

Supply Code	Model	Description	
YZ-0172		Adapter for Stimulation/Finger Electrodes, 5-PIN DIN connector (female) to stimulation output with 8-PIN DIN connector (male) Note: YZ-0172 is required for MEB-9200/9400. **For current products:** MEB-9400/2300 **Packing unit:** 1 pcs R	
Y085	**6144-007171**	Adapter with 2 mm Socket and 1.5 mm touch proof connector, to connect electrode cables with 2 mm connector to input-boxes with 1.5 mm touch proof type sockets **For current products:** EEG-1200/9100; MEB-9400/2300; MEE-1000 **Packing unit:** 5 pcs R	

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II. Accessories & Consumables for Electroencephalography (EEG)

Electroencephalographic diagnostics in hospitals and medical practices place high demands on personnel and technology. From daily routines to highly specialized examinations in long-term monitoring, polysomnography or the intensive care unit, EEG systems are required which satisfy the needs of the individual.

An Electroencephalogram (EEG) is a brain wave test that detects abnormalities in the electrical activity of the brain. This helps to diagnose: seizure disorders, head injuries, sleep disorders, unconsciousness reasons and further neurological problems. Thanks to our extensive experience, we are able to offer you the ideal solution for hospitals and medical practices. Our high quality approved EEG accessories and consumables help you to obtain best signals and to optimize your EEG recording.

Determination of the electrodes position (10/20 system)

1. Divide the longitudinal line of the head into halves and attach an electrode at the Cz point (Fig. 1).
2. Divide the distance between Cz and the nasion in proportions as shown in Fig. 1 and attach an electrode at Fz and Pz. Do not attach an electrode at Fpz and Oz.
3. Divide the transverse line of the head into proportions of 10 %, 20 %, 20 %, 20 %, 20 % and 10 % as shown in Fig. 2 and attach electrodes at T3, T4, C3 and C4.
4. Divide the peripheral line passing over Fpz, T4, Oz and T3 into proportions shown in Fig. 3 and attach electrodes at Fp2, F8, T6, O2, Fp1, F7, T5 and O1.
5. Take the line passing over F7, Fz and F8 and attach an electrode at the mid-point (F3) beween F7 and Fz as shown in Fig. 4. Attach another electrode at the mid-point (F4) between F8 and Fz.
6. Take the line passing over T5, Pz and T6 and attach an electrode at the mid-point (P3) between T5 and PZ. Attach another electrode at the mid-point (P4) between T6 and PZ.

Fig. 1

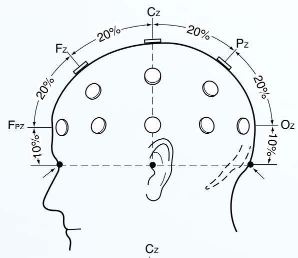


Fig. 2

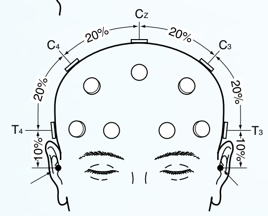


Fig. 3

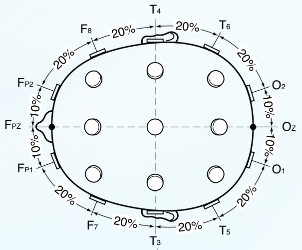
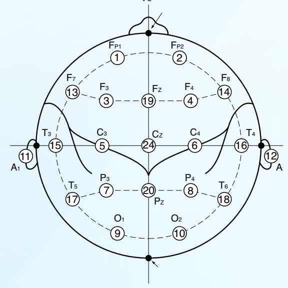


Fig. 4



6. Accessory Kit for EEG

Supply Code	Model	Description
NKD-BE-413AG		**EEG Accessory Kit – touch proof on electrode side** **Kit contains:** 1 universal EEG Cap (H564A) incl. 1 chin strap (H551A), 1 package EEG bridge electrodes (H542B) incl. related connection cables (K518A), 1 package of felt pads (NKD-FILZ), 1 package of O-rings (H659), 3 earlobe electrodes (H543B), 1 package of 4 Fastclip electrodes (H068A), 2 Fastclip connection cables (K512A), 2 tubes of cardio-Cream ECG electrode paste (F010) and 2 tubes of skinPure skin preparation gel (F020) **Packing unit:** 1 kit


H564A


H551A


H542B


K518A


NKD-FILZ


H659


H543B


H068A


K512A



F010



F020

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7. Bridge Electrodes

Facts

The hiqh quality, sintered EEG bridge electrode is adjustable in height through simply rotating.
The easy handling and cleaning makes this electrode a convenient daily work electrode.

Supply Code	Model	Description	
H542B		Sintered EEG Bridge Electrode, Ag/AgCl, colour: beige, flexible, with cross hole and bar-shaped stand, 2 mm connector **For current products:** EEG-1200/9100 **Packing unit:** 23 pcs R	
H542C		EEG Bridge Electrode, Ag, colour: white, flexible, round stand, 2 mm connector **For current products:** EEG-1200/9100 **Packing unit:** 23 pcs R	
NKD-FILZ		Electrode Felt Pad Kit for H542B, size: 25 mm dia, fixation with O-Ring Kit H569 **For current products:** EEG-1200/9100 **Packing unit:** 100 pcs D	
H561		EEG Electrode Pad Kit for H542C, incl. 100 felt tips, 100 felt pads & 50 O-Rings **For current products:** EEG-1200/9100 **Packing unit:** 1 kit D	
NKD-O-RING		O-Ring Kit for Sintered EEG Bridge Electrode H542B, size: 8.5 mm dia internal diameter **For current products:** EEG-1200/9100 **Packing unit:** 50 pcs D	
H569		O-Ring Kit for Sintered EEG Bridge Electrode H542B, size: 1.3 cm dia internal diameter **For current products:** EEG-1200/9100 **Packing unit:** 50 pcs D	

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Supply Code	Model	Description	
K518A		Electrode Connection Cable for Bridge Electrodes H542B/H543B, electrode side: 2 mm, input box side: 1.5 mm touch proof connector, cable length: 0.9 m **For current products:** EEG-1200/9100 **Packing unit:** 25 pcs R	
K518B		Electrode Connection Cable for Bridge Electrodes H542B/H543B, electrode side: 2 mm touch proof connector, input box side: 1.5 mm touch proof connector, cable length: 0.9 m **For current products:** EEG-1200/9100 **Packing unit:** 25 pcs R	
K516A	BE-403B	EEG Electrode Cable, patient side: alligator clip, input box side: 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** EEG-1200/9100 **Packing unit:** 30 pcs R	
K516B		Electrode Connection Cable for Bridge Electrodes H542B/H543A, input box side: 2 mm connector, cable length: 0.8 m **For old products:** EEG-4400/7300 **Packing unit:** 25 pcs R	

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Facts

Disinfection of bridge electrodes

As indicated in the user manual of our device, we recommend a thorough cleaning after each recording. This is based on hygienic recommendations pertaining to sediments and salt deposit. Chlorine differences might cause polarization and increase impedances leading to a decrease in electrolyte conductivity. This negatively affects recording results.

For cleaning bridge electrodes rinse them with clear warm water and wipe them thoroughly with a soft cotton cloth. For disinfection use 70 % ethanol solution. Never soak the sintered electrodes in the solution but wipe them with soft gauze moistened with ethanol. Afterwards dry the electrodes thoroughly with a soft cloth to avoid scratches to the electrode surface that could cause artefacts while EEG recording.

The electrode connector must be kept clean and dry to obtain reliable measurement signals. For cleaning the electrode cable and connector make sure they are not connected to the bridge electrodes any more. Then start wiping with soft cloth moistened with water or soap. Do not use ethanol for cleaning that may cause deterioration of the coating. Thoroughly dry the cable and connector after cleaning.

For a new recording, moisten the felt pads with a saline solution of maximum 0.9 % to ensure a constant contact resistance for EEG recording. Please remember that salt is generally aggressive to the electrodes' surface. Therefore we recommend cleaning the bridge electrodes thoroughly after the last recording of the day and previous to a non-usage time period. Especially take care of the contact plugs which may corrode by intensive contact with saline solutions. A long lifetime of a bridge electrode depends on the maintenance and care given to the electrodes.

By providing good maintenance care to the electrodes, proper EEG recording should be able to be performed without difficulty. If there is indeed a limited functionality or persistent problem, the electrodes should be replaced completely in order to avoid recording artefacts based on different electrolyte conductivity. Please remove the felt pads for disinfection and exchange them regularly.

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8. EEG Surface Electrodes

EEG surface electrodes are mainly used for EEG measurement because of the non-invasiveness and comfort for the patients. In contrary to minimal-invasive subdermal needle electrode, the electrodes impedances are higher. Therefore the preparation of the skin with skinPure skin preparation gel (F020) is very important to reduce the contact resistance between scalp and surface electrodes. To secure the electrodes generally some conductive cream such as Elefix (F509 or F510) and tape is used for disk electrodes. For restless patients it is however suggested to use cup electrodes with a more adhesive paste such as collodion (KOL-1) or Grass paste (NKD-EC2).

8.1. EEG Disk Electrodes

8.2. EEG Cup Electrodes

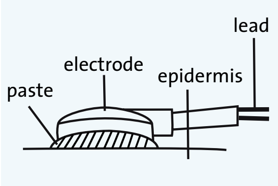
8.1.

EEG Disk Electrodes

Facts

Attaching the electrodes

1. To reduce the skin impedance, clean the electrode sites with a cotton pad moistened with alcohol or rub them with skinPure skin preparation gel (F020). Thoroughly dry the skin with dry gauze.
2. Apply an optimal amount of Elefix EEG conduction paste (F509 or F510) to the cleaned sites and rub the paste around the sites in a circle not larger than 10 mm in diameter.
3. Apply Elefix EEG conduction paste about 1 mm thick to the disk (cup) of the electrode, and attach it on the pasted skin sites
4. Cover the electrode with a piece of cotton, and press the edge of the cotton. Fasten the electrode on the site with surgical tape if necessary.
5. Connect the electrode leads to the corresponding input jacks on the electrode junction box.



Supply Code	Model	Description
H503A	NE-113A	EEG Disk Electrode for EOG & EMG, Ag, size: 11 mm dia, with brown plastic covering, 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** EEG-1200/9100; MEE-1000 **Packing unit:** 26 pcs R
H503B	NE-114A	EEG Disk Electrode for EOG & EMG, Ag, size: 11 mm dia, 1.5 mm touch proof connector, cable length: 0.8 m **For current products:** EEG-1200/9100; MEE-1000 **Packing unit:** 26 pcs R
H503	NE-103A	EEG Disk Electrode for EOG & EMG, Ag, size: 11 mm dia, 2 mm connector, cable length: 1.5 m **For old products:** EEG-4400/7300/8300 **Packing unit:** 26 pcs R





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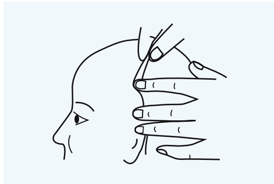
8.2. EEG Cup Electrodes

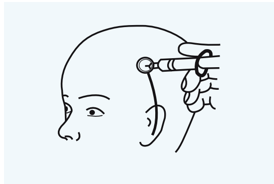
Facts

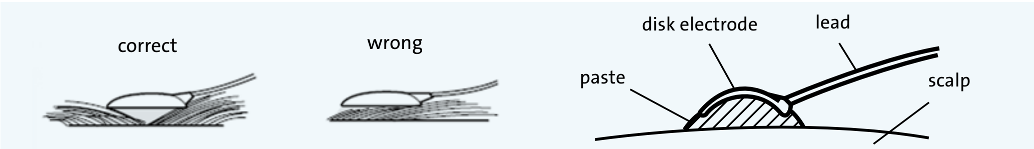
Attaching the electrodes

1. Determine the electrode placement sites according the 10/20 system.
2. Clean the area with a alcohol moistened cotton pad or skinPure skin preparation gel (F020) to remove oil from the skin. Wipe it afterwards with a dry cloth.
3. Thinly spread collodion paste (KOL-1) on electrode brim, scalp and hair roots.
4. Put Elefix conduction paste (F509 or F510) or cardioCream (F010) in a syringe and inject it into the hole of fastened electrode.
5. Cover the electrode with a small gauze pad and press the pad around the electrode. Attach the electrode with surgical tape or use the EEG net (H568) to secure the electrode position.









Scalp Disk Electrode Placement

Supply Code	Model	Description
H526	**NE-134A**	EEG Cup Electrode (Collodion), Ag, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** EEG-1200/9100; BSM-3000/6000/9100; PSG-1100; MEB-2300; MEE-1000 **Packing unit:** 12 pcs R
H527	**NE-136A**	EEG Cup Electrode (Collodion), Ag, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 0.7 m **For current products:** EEG-1200/9100; BSM-3000/6000/9100; PSG-1100; MEB-2300; MEE-1000 **Packing unit:** 12 pcs R
H520	**NE-124A**	EEG Cup Electrode (Collodion), Ag, size: 10 mm dia, 2 mm connector, cable length: 1.5 m **For old products:** EEG-4400/7300/8300 **Packing unit:** 12 pcs R
H521	**NE-126A**	EEG Cup Electrode (Collodion), Ag, size: 10 mm dia, 2 mm connector, cable length: 0.7 m **For old products:** EEG-4400/7300/8300 **Packing unit:** 12 pcs R







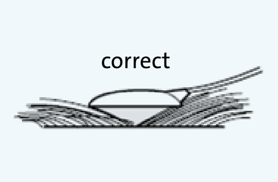
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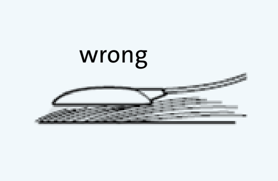
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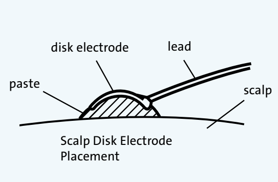
Facts

Attaching the electrodes

1. Determine the electrode placement sites according the 10/20 system.
2. Clean the area with a alcohol moistened cotton pad or skinPure skin preparation gel (F020) to remove oil from the skin. Wipe it afterwards with a dry cloth.
3. Apply a small amount of Elefix EEG conduction paste (F509 or F510) or cardioCream (F010) in a 1 cm diameter circle on the cleaned skin. Avoid spreading the paste too thin or creating to large space.
4. Press the electrode gently down on the pasted skin area.
5. Cover the electrode with a small gauze pad and press the pad around the electrode. Attach the electrode with surgical tape or use the EEG net (H568) to secure the electrode position.







Supply Code	Model	Description
NKD-FE5GH		Grass Gold Cup Electrode, Au, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 10 pcs R
NKD-FE5GH-07		Grass Gold Cup Electrode, Au, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 0.7 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 10 pcs R
NKD-FE5GH-12		Grass Gold Cup Electrode, Au, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 1.2 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 10 pcs R
NKD-FE5GH-24		Grass Gold Cup Electrode, Au, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 2.4 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 10 pcs R
NKD-FE6GH60		Grass Gold Cup Electrode, Au, size: 6 mm dia, 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 10 pcs R



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9. Subdermal Needle Electrodes

In comparison to surface electrodes, subdermal needle electrodes can be quickly and simply inserted subcutaneously in the patient‘s scalp without skin preparation or use of conductive paste. This rapid application possibility is especially advantageous when every second counts such as for emergency EEG on patients supposed to have serious acute brain dysfunction (ABD) because of head injuries and the threat of permanent brain damage or death. For a continuous EEG (cEEG) monitoring on ICU or on comatose patients the needle electrodes can be fixed with an adhesive paste and covered with a tape permeable to air to ensure an even better stay on place.

Supply Code	Model	Description	
H537A	NE-224S	Reusable Subdermal EEG Needle Electrode, stainless steel, 1.5 mm touch proof connector, size: 0.22 x 22.5 mm, cable length: 1.5 m **For current products:** EEG-1200/9100; MEB-9400; MEE-1000 **Packing unit:** 20 pcs R	
	NE-110B	Disposable Subdermal Needle Electrode Prewired, single type, stainless steel, 1.5 mm touch proof connector, size: 0.4 x 13 mm needle (27G), cable length: 1.0 m **For current products:** EEG-1200/9100; MEE-1000 **Packing unit:** 25 pcs D	
	NE-115B	Disposable Subdermal Needle Electrode Prewired, single type, stainless steel, 1.5 mm touch proof connector, size: 0.4 x 13 mm needle (27G), cable length: 1.5 m **For current products:** EEG-1200/9100; MEE-1000 **Packing unit:** 25 pcs D	
	NE-120B	Disposable Subdermal Needle Electrode Prewired, single type, stainless steel, 1.5 mm touch proof connector, size: 0.4 x 13 mm needle (27G), cable length: 2.0 m **For current products:** EEG-1200/9100; MEE-1000 **Packing unit:** 25 pcs D	
	NE-125B	Disposable Subdermal Needle Electrode Prewired, single type, stainless steel, 1.5 mm touch proof connector, size: 0.4 x 13 mm needle (27G), cable length: 2.5 m **For current products:** EEG-1200/9100; MEE-1000 **Packing unit:** 25 pcs D	
	NE-215B	Disposable Subdermal Needle Electrode Prewired, twisted pair, stainless steel, 1.5 mm touch proof connector, size: 0.4 x 13 mm needle (27G), cable length: 1.5 m **For current products:** EEG-1200/9100; MEE-1000 **Packing unit:** 20 pcs D	
	NE-220B	Disposable Subdermal Needle Electrode Prewired, twisted pair, stainless steel, 1.5 mm touch proof connector, size: 0.4 x 13 mm needle (27G), cable length: 2.0 m **For current products:** EEG-1200/9100; MEE-1000 **Packing unit:** 20 pcs D	

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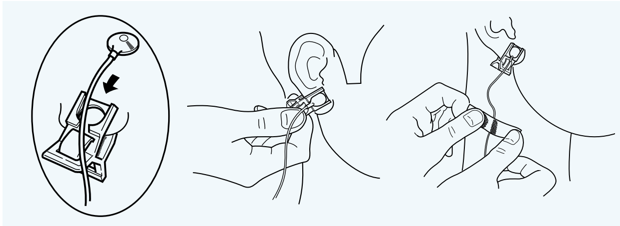
10. Earlobe Electrodes

During EEG measurement reference electrodes need to be placed on "neutral" locations. Besides any surface electrode, often located on the centre line, earlobes are used as references. To avoid electrical artefacts it is recommended to use the same material e.g. silver for the earlobe electrodes as the electrodes applied on the scalp.

Facts

Attaching the electrodes

1. Apply a small amount of Elefix EEG conduction paste (F509 or F510) to both earlobes. Gently clip on the earlobe electrodes.
2. Do not apply excessive pressure to the electrode because this may cause direct electrode-skin-contact (not through the paste) and generate unnecessary polarization voltage.
3. Secure the electrode cable to the neck with surgical tape to prevent the cable from movement.



Note: For EEG-1100/5500/5600/7400/9200 the adapter Y085 is required for earlobe electrodes with 2 mm connector.
For EEG-4400/7300/8300 the adapter Y085 is not required.

Supply Code	Model	Description	
H540A	**NE-311A**	EEG Earlobe Electrode Kit, Ag, incl. 1 x earlobe electrode clip & 1 x earlobe electrode, cable length: 1.5 m, 1.5 mm touch proof connector **For current products:** EEG-1200/9100 **Packing unit:** 1 kit R	
H540	**NE-301A**	EEG Earlobe Electrode Kit, Ag, incl. 1 x earlobe electrode clip & 1 x earlobe electrode, cable length: 1.5 m, 2 mm connector, requires Y085 **For old products:** EEG-1100/4400/5500/5600/7300/7400/8300/9200 **Packing unit:** 1 kit R	
H543B		Sintered EEG Earlobe Electrode Kit, Ag/AgCl, child/adult, incl. 1 x earlobe electrode clip & 1 x earlobe electrode, cable length: 0.9 m, 1.5 mm touch proof connector, requires Y085 **For current products:** EEG-1200/9100 **Packing unit:** 1 kit R	
H543A		Sintered EEG Earlobe Electrode Kit, Ag/AgCl, child/adult, incl. 1 x earlobe electrode clip & 1 x earlobe electrode, cable length: 0.9 m, 2 mm connector, requires Y085 **For old products:** EEG-1100/4400/5500/5600/7300/7400/8300/9200 **Packing unit:** 1 kit R	
H541	**NE-301B**	EEG Earlobe Electrode Clip for H540/H540A/H543B/H543A **For current products:** EEG-1200/9100 **Packing unit:** 10 pcs R	
Y085	**6144-007171**	Adapter with 2 mm Socket and 1.5 mm touch proof connector, to connect electrode cables with 2 mm connector to input boxes with 1.5 mm touch proof type sockets **For current products:** EEG-1200/9100; MEB-9400 **Packing unit:** 5 pcs R	

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11. ECG Measurement

During EEG measurement physiological and non-physiological caused artefacts could lead to a misinterpretation of high peaks. One of those artefacts is possible through ECG. Therefore, an ECG measurement in addition to the EEG recording is usually realized to identify those artefacts as well as heart cycle-related brain activities.

11.1. Clip Electrodes

11.2. EEG Electrodes

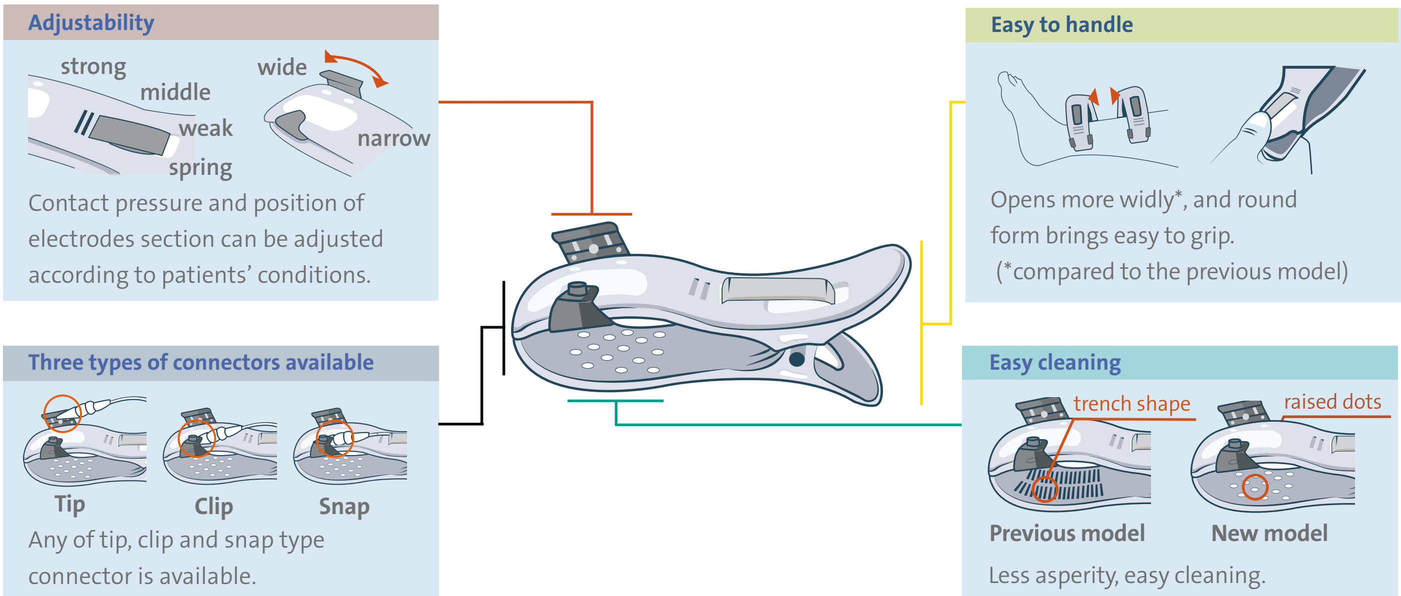
11.1. Clip Electrodes

Facts

The NIHON KOHDEN Fastclip ECG Electrodes allow a flexible application for routine work and emergency on every paediatric and adult patient thanks to a simple adjustability of the clip pressure (clip size). A more comfortable handling is guaranteed due to different connectors for any existing adapter type, a big contact area for reliable ECG measurements and easier cleaning after the measurement because of less asperity of the clip. In addition to this IEC coloured label sets are delivered with NIHON KOHDEN Fastclip ECG Electrodes.

By following the next steps, optimized derivations can be realized with NIHON KOHDEN Fastclip ECG Electrodes:

1.) Clean the according skin areas with alcohol in order to remove traces of dirt and oil on the skin.
2.) Apply a thin layer of cardioCream F010 on the cleaned skin areas and on the electrode part.
3.) Clip the electrode on the wrist or ankle. Adjust the electrode positon by sliding the electrode part according to the thickness of the limb.



Supply Code	Model	Description	
H068A		Fastclip ECG Electrode, 3 mm banana plug, child/adult, adjustable size, colour: blue, coloured IEC labels: red, yellow, green, black **For current products:** all ECG; EEG-1200/9100 **Packing unit:** 4 pcs R Fastclip	
K512A	BC-112B	Connection Cable for Fastclip ECG Electrodes, 1.5 mm touch proof connector, cable length: 2.0 m **For current products:** EEG-1200/9100 **Packing unit:** 2 pcs R	
K512	BC-102B	Connection Cable for Fastclip ECG Electrodes, 2 mm connector, cable length: 2.0 m **For old products:** EEG-1100/4400/5500/5600/7300/7400/8300/9200 **Packing unit:** 2 pcs R	

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Supply Code	Model	Description	
NKD-K10/C		Clip-on Limb Electrode, AgCl, child, 4 mm banana plug, colours: red, yellow, green, black **For current products:** all ECG; EEG-1200/9100 **For old products:** EEG-1100/4400/5500/5600/7300/7400/8300/9200 **Packing unit:** 4 pcs R	
NKD-KR4B2SS		Connection Cable for NKD-K10/C, 2 mm connector, cable length: 1.5 m **For current products:** all ECG **For old products:** EEG-1100/4400/5500/5600/7300/7400/8300/9200 **Packing unit:** 1 pcs R	
NKD-KR4BDINS		Connection Cable for NKD-K10/C, 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** all ECG; EEG-1200/9100 **Packing unit:** 1 pcs R	
NKD-KR26DIN20		Extension Cable, 1.5 mm DIN jack to 1.5 mm touch proof connector, cable length: 2.0 m **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R	

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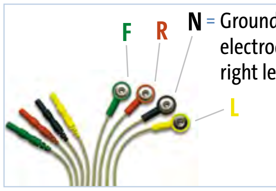
11.2. ECG Electrodes

NIHON KOHDEN Vitrode Disposable ECG Electrodes –

The result of over 30 years experience in disposable electrode manufacturing.

The ECG electrodes are the most important portions of the ECG/arrhythmia monitoring system. It is through these electrodes that the electrical signals are conducted from the patient and into the monitoring system. If the electrodes are left in place for an extended period of time (over 48 hours), or they are reused once they are removed, they do not adhere to the patient's skin and they cause "noisy" ECG signals because of the poor conduction. In addition, the patient's movement causes the electrodes to lose conducting capabilities intermittently, and this leads to a "wandering" ECG waveform and muscle artefact. The standard monitoring practice is to change these electrodes at least every 48 hours.

Please contact us for individual offer based on your annual volume! Use the possibility of call orders!

Supply Code	Model	Description	
G203	L-150	ECG Electrode Vitrode L, Ag/AgCl, adult, size: 35 mm dia, foam tape, solid gel, general use **Packing unit:** 5 x 30 pcs D Vitrode L Vitrode	
G210D	F-150M	ECG Electrode Vitrode F, Ag/AgCl, adult, size M: 25 x 45 mm, cotton tape especially for sensitive skin, adhesive gel **Packing unit:** 3 x 50 pcs D Vitrode F Vitrode	
G210C	F-150S	ECG Electrode Vitrode F, Ag/AgCl, neonate/child, size S: 18 x 36 mm, cotton tape especially for sensitive skin, adhesive gel **Packing unit:** 3 x 50 pcs D Vitrode F Vitrode	
NKD-15026N		ECG Snap Lead Wire Kit, 1.5 mm touch proof connector, cable length: 1.5 m, colours: red, yellow, green, black **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 4 pcs R	

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12. EEG Head Caps

12.1. NIHON KOHDEN Caps

Facts

The NIHON KOHDEN universal EEG caps are usually used as positioning help for EEG bridge electrodes H542B and H542C. Silicone tubes are reticular arranged and reunited on both ears. The design of the ear pieces as well as the flexible material of the tubes allows an easy adjustment todifferent patients' scalp sizes and forms as the side and cross tubes can be simply put into the desired position. This straightforward and universal application tool is a perfect help for the classic 10/20 EEG recording as well as further EEG electrodes positioning systems.

Supply Code	Model	Description	
H564A	BE-0007	Universal EEG Silicone Cap, adjustable **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R	
H551A	BE-0008	Chin Strap for H564A, adjustable, with chin guard, strap length: 42 cm, incl. one-touch type adapter **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R	
1144-008488C		Ear Holder for Universal EEG Silicone Cap H564A **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R	
2114-073312		Tube Holder for Universal EEG Silicone Cap H564A **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R	
2114-073401		Tube Stopper for Universal EEG Silicone Cap H564A **For current products:** EEG-1200/9100 **Packing unit:** 10 pcs R	
BE-81005		Exchange Tube for Universal EEG Silicone Cap H564A **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R	
H568	2114-042676B	EEG Net, to secure EEG electrodes positions for long-term examinations **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R	

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12.2. ElectroCaps

Easy, fast and correct EEG electrodes application is guaranteed by the large portfolio of neonatal and adult cap sizes of ElectroCaps. Whereas for adults the 10/20 system for EEG electrodes positioning is implemented, the 10/10 system for neonates or infants up to two years is also possible. Generally adult and child caps are provided with 20 or 21 electrodes, neonatal or infant caps with 14 electrodes. Any further electrodes positions can be produced based on your request. To fix the caps special chest bands and chin straps were designed. The connection to your EEG system is facilitated by only one electrode board adapter for connecting all electrodes.

Please note that all ElectroCaps are made of spandex and need to be cleaned immediately after use. Otherwise the material elasticity will be destroyed resulting in a shorter product life time. For cleaning only use the cleaning emulsion Ivory to avoid film residual on the electrode material. It is recommended to not mix different colours together.

12.2.1. ElectroCap Systems

Facts

The ElectroCap System I, II and III are comfortable starter kits as they include different types of caps, that you can define, as well as all necessaryaccessories to start immediately the EEG application. Besides this a training video DVD is provided to show you how to apply the caps properly.

Note: Please specify with your order if you need a 2 mm connector for your ElectroCap System Kits!

Supply Code	Model	Description
NKD-SYS1		**ElectroCap System I Kit** **Kit contains:** 1 medium cap at your choice, 1 electrode board adapter (NKD-E2), 1 chest band (NKD-E3M), 1 quick insert electrode (NKD-E4), 1 pair of ear electrodes (NKD-E5/9Z-26), 100 disposable foam rings (NKD-E6), 1 kit of needles and syringe (NKD-E7), 1 electrode gel cup (NKD-E9), 1 adult head measuring tape (NKD-E12), 1 bottle of cleaning emulsion (NKD-E16/700) **For current products:** EEG-1200/9100 **Packing unit:** 1 kit





NKD-E2



NKD-E3M



NKD-E4



NKD-E5/9Z-26



NKD-E6



NKD-E7



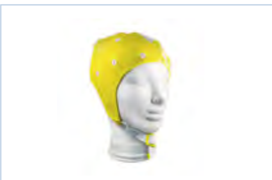
NKD-E9



NKD-E12



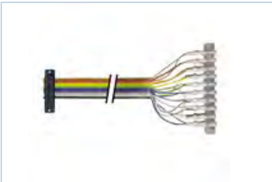
NKD-E16/700



1 medium cap at your choice

Supply Code	Model	Description
NKD-SYS2		**ElectroCap System II Kit** **Kit contains:** 1 large/1 medium cap at your choice, 1 electrode board adapter (NKD-E2), 1 chest band (NKD-E3M), 2 quick insert electrodes (NKD-E4), 2 pairs of ear electrodes (NKD-E5/9Z-26), 100 disposable foam rings (NKD-E6), 2 kits of needles and syringe (NKD-E7), 2 electrode gel cups (NKD-E9), 1 adult head measuring tape (NKD-E12), 1 bottle of cleaning emulsion (NKD-E16/700) **For current products:** EEG-1200/9100 **Packing unit:** 1 kit





NKD-E2



NKD-E3M



NKD-E4



NKD-E5/9Z-26



NKD-E6



NKD-E7



NKD-E9



NKD-E12



NKD-E16/700



1 large/1 medium cap at your choice

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Supply Code	Model	Description
NKD-SYS3		**ElectroCap System III Kit** **Kit contains:** 1 large/1 medium/1 small/1 extra small cap at your choice, 1 electrode board adapter (NKD-E2), 2 chest bands (NKD-E3M), 4 quick insert electrodes (NKD-E4), 2 pairs of ear electrodes (NKD-E5/9Z-26), 200 disposable foam rings (NKD-E6), 4 kits of needles and syringe (NKD-E7), 3 electrode gel cups (NKD-E9), 1 adult head measuring tape (NKD-E12), 1 bottle of cleaning emulsion (NKD-E16/700) **For current products:** EEG-1200/9100 **Packing unit:** 1 kit





NKD-E2



NKD-E3M



NKD-E4



NKD-E5/9Z-26



NKD-E6



NKD-E7



NKD-E9



NKD-E12



NKD-E16/700



1 large/1 medium/1 small/
1 extra small cap at your choice

12.2.2. ElectroCaps for Adults

Supply Code	Model	Description
NKD-E1L		ElectroCap L, adult, size: 58-62 cm, colour: blue, 20 electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E1LM		ElectroCap L, adult, size: 56-60 cm, colour: blue & red, 20 electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E1-LMF		ElectroCap L, adult, size: 56-60 cm, colour: blue & red, 20 flat electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E1M		ElectroCap M, adult, size: 54-58 cm, colour: red, 20 electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E1M-F		ElectroCap M, adult, size: 54-58 cm, colour: red, 20 flat electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E3S		Chest Band for all ElectroCaps, S, adult, colour: yellow, band length: 72 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E3M		Chest Band for all ElectroCaps, M, adult, colour: red, band length: 95 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E3L		Chest Band for all ElectroCaps, L, adult, colour: blue, band length: 1.16 m **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R





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Supply Code	Model	Description
NKD-E23/7		Chin Strap for all ElectroCaps, adults, colour: white, strap length: 17.78 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pair R



12.2.3. ElectroCaps for Children/Adults

Supply Code	Model	Description
NKD-E1MS		ElectroCap M/S, child/adult, size: 52-56 cm, colour: red & yellow, 20 electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E1MS-F		ElectroCap M/S, child/adult, size: 52-56 cm, colour: red & yellow, 20 flat electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E1S		ElectroCap S, child, size: 50-54 cm, colour: yellow, 20 electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E1SXS		ElectroCap S, child, size: 48-52 cm, colour: yellow & green, 20 electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E1XS		ElectroCap XS, child, size: 46-50 cm, colour: green, 20 electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R





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Supply Code	Model	Description
NKD-E3S		Chest Band for all ElectroCaps, S, adult, colour: yellow, band length: 72 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E3M		Chest Band for all ElectroCaps, M, adult, colour: red, band length: 95 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E23/5		Chin Strap for all ElectroCaps, child, colour: white, strap length: 12.7 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pair R
NKD-E23/7		Chin Strap for all ElectroCaps, adults, colour: white, strap length: 17.78 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pair R





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12.2.4.

ElectroCaps for Infants

Supply Code	Model	Description
NKD-I1/1F		ElectroCap, neonate/infant, size: 42-46 cm, colour: light blue, 14 flat Sn electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-I1/2F		ElectroCap, neonate/infant, size: 38-42 cm, colour: pink, 14 flat Sn electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-I1/3F		ElectroCap, neonate/infant, size: 34-38 cm, colour: brown, 14 flat Sn electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-I1/4F		ElectroCap, neonate/infant, size: 30-34 cm, colour: yellow, 14 flat Sn electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-I1/5F		ElectroCap, neonate/infant, size: 26-30 cm, colour: blue, 14 flat Sn electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-I1/6F		ElectroCap, neonate/infant, size: 22-26 cm, colour: red, 14 flat Sn electrodes **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-I2		Chest Band for NKD-I1/xF, neonate/infant, colour: white, band length: 40 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-I23		Chin Strap for all NKD-I1/xF, infant/child, colour: white, strap length: 9 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pair R







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12.2.5. ElectroCap Accessories

Facts

The coloured sections on the tape correlate with the colours of the different ElectroCaps and indicate therefore which size will be the appropriated one for the patient.

Supply Code	Model	Description
NKD-E12		Head Measuring Tape for Adult ElectroCaps, colour: white **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-I3		Head Measuring Tape for Infant ElectroCaps, colour: white **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R





Facts

The chest bands can be easily adapted to the patients' body size thanks to their elastic material and the Velcro fastener. Those band help to secure the cap placement and minimize eventual movement artefacts or high impedances.

Supply Code	Model	Description
NKD-I2		Chest Band for NKD-I1/xF, neonate/infant, colour: white, band length: 40 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E3S		Chest Band for all ElectroCaps S, adult, colour: yellow, band length: 72 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E3M		Chest Band for all ElectroCaps M, adult, colour: red, band length: 95 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E3L		Chest Band for all ElectroCaps L, adult, colour: blue, band length: 1.16 m **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R





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Supply Code	Model	Description
NKD-I23		Chin Strap for all NKD-I1/xF, infant/child, colour: white, strap length: 9 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pair R
NKD-E23/5		Chin Strap for all ElectroCaps, child, colour: white, strap length: 12.7 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pair R
NKD-E23/7		Chin Strap for all ElectroCaps, adult, colour: white, strap length: 17.78 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pair R





Facts

The cap bands are applied on the ElectroCaps and chest bands to ensure that the caps do not move. Thanks to their elastic material, a flexible attachment is possible.

Supply Code	Model	Description
NKD-E13S		Cap Band for all ElectroCaps S, colour: white, length: 15-18 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E13M		Cap Band for all ElectroCaps M, colour: white, length: 16-20 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R
NKD-E13L		Cap Band for all ElectroCap L, colour: white, length: 16.5-21 cm **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R



Facts

This electrode is an intermediate electrode to overcome sudden signal problems of a defective electrode during an examination. It can be attached to the frame of the defective electrode and directly connected to the EEG system until the cap will be completely checked and repaired.

Supply Code	Model	Description
NKD-E4		Quick Insert Electrode, 1.5 mm touch proof connector, cable length: 1.2 m, for all ElectroCaps, Note: Please indicate if you need a 2 mm connector. **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs D



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Facts

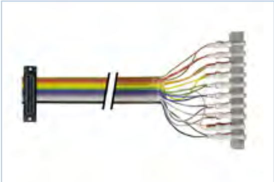
Disposable foam rings can be used to absorb sweat, to avoid the expansion of the conductive gel and to prevent the ElectroCaps from moving. Thanks to the adhesive backing they can be easily attached to the forehead or on any other hairless area. Their use is especially recommended for infants because of the more comfortable soft feeling of the caps on the head.

Supply Code	Model	Description	
NKD-E6		Disposable Sponge Disks for ElectroCaps, for fixing on forehead, adhesive on one side **For current products:** EEG-1200/9100 **Packing unit:** 100 pcs D	

Supply Code	Model	Description	
NKD-E5/6Z-26		Ear Electrodes for Infant ElectroCaps, Sn, 1.5 mm touch proof connector, electrode size: 6 mm dia, cable length: 1.22 m **For current products:** EEG-1200/9100 **Packing unit:** 1 pair R	
NKD-E5/9Z-26		Ear Electrodes for Child/Adult ElectroCaps, Sn, 1.5 mm touch proof connector, electrode size: 9 mm dia, cable length: 1.22 m **For current products:** EEG-1200/9100 **Packing unit:** 1 pair R	
NKD-E7		Disposable Needles & Syringe Kit for ElectroCaps, incl. 2 x blunted needles & 1 x syringe **For current products:** EEG-1200/9100 **Packing unit:** 1 kit D	
NKD-E7B		Disposable Syringes for ElectroCaps **For current products:** EEG-1200/9100 **Packing unit:** 100 pcs D	
NKD-E8		Disposable Blunted Needle for NKD-E7, for all ElectroCaps, needle length: 20 mm **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs D	
NKD-E8B		Disposable Blunted Needle for NKD-E7, for all ElectroCaps, needle length: 20 mm **For current products:** EEG-1200/9100 **Packing unit:** 100 pcs D	

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Supply Code	Model	Description	
NKD-E16/700		ElectroCap Cleaning Emulsion Ivory, 700 ml bottle, for all ElectroCaps **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs D	
NKD-E9		Electrode Gel for all ElectroCaps, 480 g cup **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs D	
NKD-E10		Electrode Gel for all ElectroCaps, 960 g cup **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs D	
NKD-E11		Conductive Electrolyte Gel for all ElectroCaps, 3780 g cup **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs D	
NKD-E25		Double-Sided Adhesive Electrode Pads for Disk Electrodes, for all ElectroCaps **For current products:** EEG-1200/9100 **Packing unit:** 100 pcs D	
NKD-E2		Electrode Board Adapter for ElectroCaps XS-L, 1.5 mm touch proof connector Note: Please indicate if you need a 2 mm connector. **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R	
NF-E2/NK-9G		ElectroCaps Adapter Cable for JE-910AG/921AG **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R	
NF-E2/NK-9K		ElectroCaps Adapter Cable for JE-910A/921A **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R	

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12.3. BraiNet Caps

BraiNet caps are perfectly suitable for quick and fast electrodes positioning for EEG recordings in intensive care or emergency units. The latex-free elastic material avoids allergic reactions of the patients. As the caps should be only used for a single patient, no cleaning is required and cross-infections are reduced. The use of BraiNet makes a classic measuring or marking of the head redundant. They can be easily adapted to the patients' scalp with adjustable straps. The colour-coded areas correspond to the colours of the jack box overlays that can be put on the jack box inputs for simply recognition which electrode needs to be attached to which input. Thanks to the easy application a faster diagnoses is possible as the preparation time is reduced to 10 minutes.

The large portfolio of sizes ensures a proper fit for all patients:

Original BraiNet caps are intended for paediatric and adult patients in emergency and intensive care units with a reduced number of electrodes. The 10/20 BraiNet caps are designed for routine EEG, epilepsy monitoring, ambulatory EEG and continuous EEG. Baby BraiNet caps are designed for STAT and amplitude-integrated EEG in the neonatal intensive care units.

Supply Code	Model	Description
NKD-A205		Adhesive ECG Rings, size: 20 x 5 mm **For current products:** all ECG; EEG; BSM-3000/6000/9100 **Packing unit:** 500 pcs D
NKD-BN100		Original BraiNet S, child/adult, size: 46-54 cm circumference, 14 electrodes **For current products:** all EEG; BSM-3000/6000/9100 **Packing unit:** 1 pcs D
NKD-BN101		Original BraiNet L, child/adult, size: 54-62 cm circumference, 14 electrodes **For current products:** all EEG; BSM-3000/6000/9100 **Packing unit:** 1 pcs D
NKD-BN106		10-20 BraiNet, child/adult, size: 45.5-49 cm circumference, 21 electrodes **For current products:** all EEG; BSM-3000/6000/9100 **Packing unit:** 1 pcs D
NKD-BN107		10-20 BraiNet, child/adult, size: 49.5-54 cm circumference, 21 electrodes **For current products:** all EEG; BSM-3000/6000/9100 **Packing unit:** 1 pcs D
NKD-BN108		10-20 BraiNet, child/adult, size: 54.5-57 cm circumference, 21 electrodes **For current products:** all EEG; BSM-3000/6000/9100 **Packing unit:** 1 pcs D







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Supply Code **Model** **Description**

NKD-BN109

10-20 BraiNet, child/adult, size: 57.5-62 cm circumference, 21 electrodes

For current products: all EEG; BSM-3000/6000/9100
Packing unit: 1 pcs D

NKD-BN111

Baby BraiNet 1, NICU, size: 25-29 cm circumference, 14 electrodes

For current products: all EEG; BSM-3000/6000/9100
Packing unit: 1 pcs D



NKD-BN112

Baby BraiNet 2, NICU, size: 29.5-33 cm circumference, 14 electrodes

For current products: all EEG; BSM-3000/6000/9100
Packing unit: 1 pcs D

NKD-BN113

Baby BraiNet 3, NICU, size: 33.5-37 cm circumference, 14 electrodes

For current products: all EEG; BSM-3000/6000/9100
Packing unit: 1 pcs D

NKD-BN114

Baby BraiNet 4, NICU, size: 37.5-41 cm circumference, 14 electrodes

For current products: all EEG; BSM-3000/6000/9100
Packing unit: 1 pcs D

NKD-BN115

Baby BraiNet 5, NICU, size: 41.5-45 cm circumference, 14 electrodes

For current products: all EEG; BSM-3000/6000/9100
Packing unit: 1 pcs D

NKD-BN500

Baby BraiNet Head Box Overlay, adhesive coloured stickers for jack box inputs customization

For current products: all EEG; BSM-3000/6000/9100
Packing unit: 1 kit D



NKD-BN505

10/20 BraiNet Head Box Overlay, adhesive coloured stickers for jack box inputs customization

For current products: all EEG; BSM-3000/6000/9100
Packing unit: 1 kit D



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13. Additional EEG Accessories

13.1. Pastes & Creams

13.2. Bags

13.3. Recording Paper

13.4. Recording Ink

13.5. Recording Pens

13.1. Pastes & Creams

Supply Code	Model	Description
F010	Z-101BC	cardioCream ECG Electrode Paste, 100 g tube **Packing unit:** 2 pcs D cardioCream
F020	YZ-0019	skinPure Skin Preparation Gel, reduces the electrode skin impedance, 135 g tube Note: Can be used with all surface applied electrodes. **Packing unit:** 2 pcs D skinPure





Facts

The NIHON KOHDEN electrode paste Elefix integrates outstanding sticking qualities with an excellent electrical conductivity. Additionally Elefix has a creamy quality so that the electrodes can be attached firmly to the patient without additional fixation, on the other hand Elefix does not harden so that the electrodes can be removed without any problems even after longer examinations.

The contact impedance between skin and electrode is greatly reduced. In addition, the signal transmission remains stable even under unfavourable external conditions.

NIHON KOHDEN Elefix can be used with all surface applied electrodes.

Supply Code	Model	Description
F509	Z-181JE	Elefix EEG Conduction Paste, 180 g tube **Packing unit:** 1 pcs D Elefix
F510	Z-401CE	Elefix EEG Conduction Paste, 400 g cup **Packing unit:** 1 pcs D Elefix





Supply Code	Model	Description
NKD-NUPREP		Skin Preparation Gel for Neonates, 114 g tube, reduces the skin impedance **Packing unit:** 3 pcs D
NKD-EC2		Conductive Grass Paste EC2 for long-term EEG measurement, 100 g tube **Packing unit:** 10 pcs D
KOL-1		Collodion Kit, 6.5 ml bottle **Packing unit:** 20 pcs D







13.2. Bags

Supply Code	Model	Description	
NKD-POUCH-JE215		Bag for Mini Input Box JE-215/216/217AK **For current products:** EEG-1200 **Packing unit:** 1 pcs R	
NKD-POUCH-JE225		Bag for Mini Input Box JE-225/226/227AK **For current products:** EEG-1200 **Packing unit:** 1 pcs R	
NKD-POUCH-JE922		Bag for Mini Input Box JE-113/114/914/922A, incl. belt and shoulder strap **For current products:** EEG-1200/9100 **Packing unit:** 1 pcs R	
Y222		Carrying Bag for Air EEG, colour: purple & black, width: 13 cm, length: 16 cm, height: 3 cm **For current products:** WEE-1000 **Packing unit:** 1 pcs R	
Y763A		Shoulder Strap for Air EEG, width: 3.8 cm, length: 1.5 m **For current products:** WEE-1000 **Packing unit:** 1 pcs R	
Y763B		Belt for Air EEG, width: 3.8 cm, length: 0.5 m **For current products:** WEE-1000 **Packing unit:** 1 pcs R	

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13.3. Recording Paper



Supply Code	Model	Description
NKD-155/15		Thermal Paper, Z-fold, 155 mm x 150 m (page 150 mm), 1000 pages, with grid/queue mark, without perforation **For old products:** EEG-9109/7209 **Packing unit:** 1 pcs D
NKD-210T		Thermal Paper, Z-fold, 210 mm x 300 m (page 300 mm), 1000 pages, vertical orange lines, with queue mark/perforation **For old products:** EEG-5600 **Packing unit:** 1 pcs D
NKD-245/1	FV245-30	Recording Paper, Z-fold, 245 mm x 300 m (page 300 mm), 1000 pages, vertical orange lines, with queue mark/perforation **For old products:** EEG-5200/6510/7300/8300 **Packing unit:** 1 pcs D
A720B	FQW210-10B	Thermal Paper, Z-fold, 210 mm x 100 m (page 300 mm), 333 pages, without grid, with queue mark/perforation **For old products:** EEG-5600; MEB-4200; MEM-4200/4104 **Packing unit:** 5 pcs D
C451	FV245-10	Recording Paper, Z-fold, 245 mm x 100 m (page 300 mm), 333 pages, vertical orange lines, with queue mark/perforation **For old products:** EEG-4409/5109/5113/5208/5210/5214/5400/6109/6113/7213/7310/7314/7400 **Packing unit:** 1 pcs D
C452	FV245-30	Recording Paper, Z-fold, 245 mm x 200 m (page 300 mm), 333 pages, vertical orange lines, with queue mark/perforation **For old products:**EEG-4409/5109/5113/5208/5210/5214/5400/6109/6113/7213/7310/7314/7400 **Packing unit:** 1 pcs D
C474	FV345-30	Recording Paper, Z-fold, 345 mm x 300 m (page 300 mm), 1000 pages, vertical orange lines, with queue mark/perforation **For old products:**EEG-1218/1514/1518/3114/3118/4414/4418/4514/4518/6718 **Packing unit:** 1 pcs D

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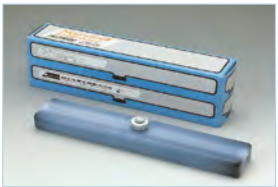
Supply Code	Model	Description
C491	FV400-30	Recording Paper, Z-fold, 400 mm x 300 m (page 300 mm), 1000 pages, vertical orange lines, with queue mark/perforation **For old products:**EEG-1224/1524/3121/4412/4421/4524 **Packing unit:** 1 pcs D
C810	RIW114-3	Recording Paper, roll, 114 mm x 30 m, without grid, without queue mark/perforation **For old products:** AEPH **Packing unit:** 10 pcs D



13.4. Recording Ink

Supply Code	Model	Description
F515	NSE-40BL	Black Ink, 400 ml bottle, with flexible pouring nozzle **For old products:** EEG-4400 **Packing unit:** 1 pcs D
F516	NSE-25BL	Black Ink, 250 ml cartridge **For old products:** EEG-7300/7400/8300 **Packing unit:** 2 pcs D

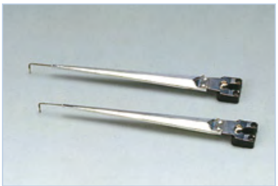
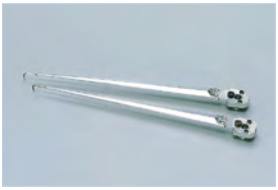
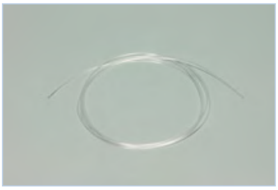




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13.5. Recording Pens

Supply Code	Model	Description	
M520		Recording Pen SJ-85K, ruby tip, with holder, length: 8.5 cm **For old products:** EEG-7100 **Packing unit:** 2 pcs R	
M521	YE-006A	Recording Pen SJ-85M, carbide tip, with holder, length: 8.5 cm **For old products:** EEG-7209/7213/8213 **Packing unit:** 2 pcs R	
M523		Recording Pen SJ-85S, ruby tip, with holder, length: 8.5 cm **For old products:** EEG-7200 **Packing unit:** 2 pcs R	
M524A	YE-010A	Recording Pen SJ-120AM, steel tip, with holder, length: 12 cm **For old products:** EEG-1214/1218/1224/1500/1714/3100/ 4400/5400/6700/7300/7400 **Packing unit:** 2 pcs R	
M528		Recording Pen SJ-120N, ruby tip, with holder, length: 12 cm **For old products:** EEG-4100/7300/7400/8300 **Packing unit:** 2 pcs R	
M531A	YE-017A	Recording Pen SJ-120SM, ruby tip, with holder, length: 12 cm **For old products:** EEG-4400/7300/7400/8300 **Packing unit:** 2 pcs R	
M540	6114-009395	Ink tube, for all EEG systems with ink recording system, length: 2.0 m **Packing unit:** 1 pcs R	
NKD-INBUS		INBUS Wrench, for mounting of the pen and for adjustment of the pen pressure, size: 1.5 mm **Packing unit:** 1 pcs R	

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III. Accessories & Consumables for amplitude-integrated Electroencephalography (aEEG)

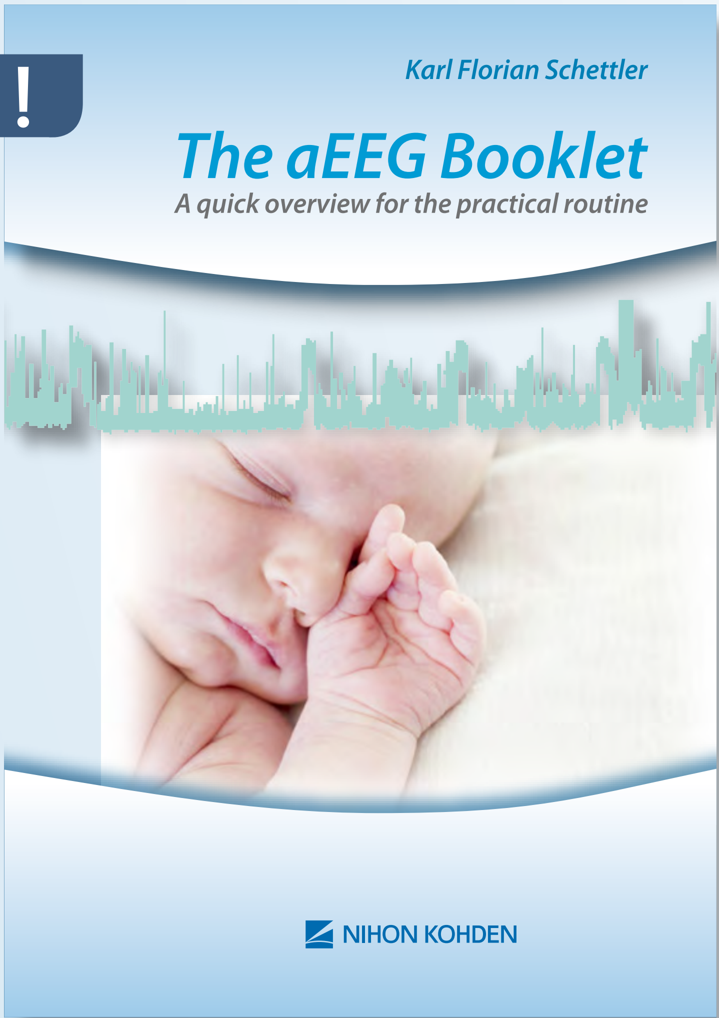
14. aEEG Measurement

Amplitude-integrated EEG (aEEG) is a Cerebral Function Monitoring (CFM) especially used in neonatal intensive care units (NICU) giving immediately an important information about the brain activity. The 2-channel aEEG employs the electrode positions C3, P3, C4 and P4. The reference electrode is usually applied on a neutral location such as central forehead or the shoulder. The method is based on filtered and time compressed EEG reflecting the minimum and maximum amplitudes of “raw EEGs”. This enables an easy evaluation of changes and trends in electrocortical activity. Neurological brain disorders are identified with relatively simple pattern recognition between normal and abnormal brain activity such as seizures, sleep-wake cycles, low voltage, burst suppression or flat trace. Cerebral function disturbances are therefore recognized at a very early stage and allow an adequate therapy.

14.1. aEEG Starter Kits

14.2. aEEG Accessories

The aEEG Booklet



A practical quick overview

NIHON KOHDEN and Karl Florian Schettler presented a reference book about the amplitude-integrated EEG.
It fits perfectly in every doctor's pocket: "The aEEG booklet", a practical reference book in a manageable paper book format, that demonstrates the range of application and the possibilities of the amplitude-integrated EEG (aEEG) in a quick and concise manner. The book is with its unique handy size a perfect fill-in between practice and theory.
Though "The aEEG booklet" is quite more than a quick help for medics and clinical expert staff, Karl Florian Schettler also demonstrates the multi-purposed options of the appliance in the field of neonatology.
With the help of case studies, Schettler shows how valuable the method is for the monitoring of brain function of newborn babies.
"My intention is to bring forward the aEEG method and to establish a neurological early-warning system", says Schettler: "For instance with the aEEG physicians can early identify neurologic problems of premature infants".
Physicians can order "The aEEG booklet" free of charge in English version at NIHON KOHDEN EUROPE (www.nihonkohden.net) or by contacting our sales representatives.

14.1. aEEG Starter Kits

Facts

"Simplify your electrode application"

In practice different aEEG application possibilities exist that are mainly dependent on the experience, preference of the user or costs: subdermal needle electrodes, cup electrodes and hydrogel electrodes. Low impedances and good signal quality combined with an easy application and long-lasting fixation are expectations to those electrodes.

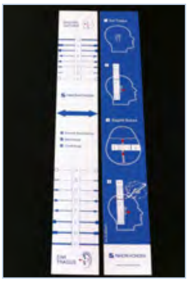
NIHON KOHDEN created three dedicated aEEG Starter Kits to respond to the different preferences of the users and to simplify your electrode application. They are provided in durable boxes which contain all relevant accessories to do the aEEG recording with the chosen electrode type. The re-closable box helps you to store all aEEG material at one place, ready for use.

Supply Code	Model	Description
NKD-AEEG/K3		**aEEG Kit 3 – Subdermal Needle Electrodes Kit** **Kit contains:** 1 package of subdermal needle electrodes (NKD-NM2512), 2 aEEG positioning rulers (NF-EEG/HELP), 1 coloured head box overlay (NKD-BN505) **For current products:** EEG-1200/9100; BSM-6000/9100 **Packing unit:** 1 kit





NKD-NM2512



NF-EEG/HELP



aEEG Application Steps for Subdermal Needle Electrodes

!

Steps	Description
1 Electrode positioning	• Define the electrode positions according to 10/20 system by using the positioning helps (i.e. NF-EEG/Help).
2 Inital cleaning	• Clean the electrode placement areas from blood, vernix, meconium with a gauze and a skin cleanser as antiseptic. Attention: The skin of preterms is very thin. Be careful not to injure the skin. • Please clean as for transcutaneous punctures.
3 Insertion	• Prestress the according skin area in order to reduce insertion pain for the patient. • Do not insert needles towards each other to avoid that they will come into contact with each other under the skin and to avoid a "short circuit" = artefact. • Quickly insert the needles with an angle of around 45 ° to minimize the pain for the patient. • Insert each needle electrode subcutaneously up to the plastic hub. Avoid further insertion which could cause muscle artefacts: - Place the BLUE electrode (LB) on the left back part of the scalp -> P3 - Place the VIOLET electrode (LF) on the left frontal/central part of the scalp -> C3 - Place the GREY electrode (RF) on the right frontal/central part of the scalp -> C4 - Place the WHITE electrode (RB) on the right back part of the scalp -> P4 - Place the BLACK electrode (Z) as reference electrode -> Z-electrode
4 Fixation	• Once applied, fix each needle electrode using an adhesive tape. • Plug into the data acquisition unit.









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Supply Code	Model	Description
NKD-AEEG/K1		**aEEG Kit 1 – Hydrogel Electrodes Kit**

Kit contains: 2 sizes of hydrogel electrodes (NKD-N300, NKD-N306), 3 tubes of skin preparation gel (NKD-NUPREP), 5 electrode extension cables (NKD-KR26DIN15), 2 aEEG positioning rulers (NF-EEG/HELP), 1 coloured head box overlay (NKD-BN505)

For current products: EEG-1200/9100; BSM-6000/9100
Packing unit: 1 kit



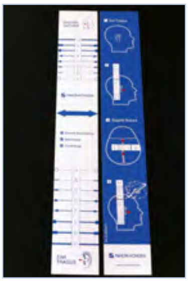

NKD-N300


NKD-N306



NKD-NUPREP


NKD-KR26DIN15


NF-EEG/HELP



NKD-BN505

Supply Code	Model	Description
NKD-AEEG/K2		**aEEG Kit 2 – Cup Electrodes Kit**

Kit contains: 1 package of cup electrodes (H526), 3 tubes skin preparation gel (NKD-NUPREP), 1 tube of conductive EEG paste (NKD-EC2), 2 aEEG positioning rulers (NF-EEG/HELP), 1 coloured head box overlay (NKD-BN505)

For current products: EEG-1200/9100; BSM-6000/9100
Packing unit: 1 kit




H526



NKD-NUPREP



NKD-EC2


NF-EEG/HELP



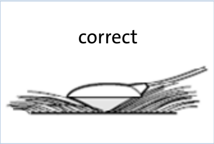
NKD-BN505

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!

aEEG Application Steps for Hydrogel and Cup Electrodes

Steps	Description	
1 Electrode positioning	• Define the electrode positions according to 10/20 system by using the positioning helps (i.e. NF-EEG/Help).	
2 Initial cleaning	• Clean the scalp from blood, vernix, meconium.	
3 Free the areas from hairs	• Prepare the electrode positions by exposing the scalp. Part the child's hair with e.g. using a toothbrush, a fine comb or wet cotton stick. If necessary remove hairs locally, e.g. using a nasal hair trimmer.	
4 Skin preparation	• Remove remaining contaminants from scalp (see point 2). A cotton stick helps keeping your already prepared skin area. • Apply your skin peeling cream (e.g. Nuprep). • Spread the peeling cream continuously and strongly in the skin area. • Do not use peeling cream with small preterm infants (23-28 week of gestational age).	
5 Hydrogel electrodes fixation	• When fixing the electrodes, ensure that the cables always run upwards. • Warm-up hydrogel electrodes before attachment for good functioning.	
6 Cup electrodes fixation	• Make sure that cup electrodes will be not attached over hairs. • Use an adhesive and conductive fixation gel (e.g. Grass paste).	

14.2. aEEG Accessories

Facts

Subdermal needle electrodes for aEEG application can be quickly applied and show immediately a good signal quality. Once inserted they usually do not drop off or get out of place and are perfectly for long-term aEEG monitoring or for asphyxia detection.

The additional advantage of NIHON KOHDEN aEEG needles is the user-friendly design. The unique flat cable philosophy over the bigger cable part solves the problem of entangled cables. Tensions on the needles can be easily adjusted by detaching the relevant cable from the other ones as the needle ends are not attached together. The placement of the reference needle electrode on the side allows the user to employ also another type of electrode as reference when simply detaching the needle electrode from the rest of the flat cable. The length of 1.5 m of the flat cable makes an additional connection cable for the EEG junction box inputs redundant. The standard 1.5 mm touch proof connectors can be easily attached to the EEG inputs of any EEG system.

A simplified application is moreover assured by the colour-coded cables and the positioning label on the scalp at both cable ends:

Needle Electrode 1: Z=Ground (colour: black)

Needle Electrode 2: RB=Right Back=P3 (colour: white)

Needle Electrode 3: RF=Right Front=C4 (colour: grey)

Needle Electrode 4: LF=Left Front=C3 (colour: violet)

Needle Electrode 5: LB=Left Back=P3 (colour: blue)

Supplementary safety is assured by sterile pouches and five single "exchange needles" in addition to the 10 flat cables per box. Those replacement needles can be used to overcome single needles that become unsterile by accident. This solution avoids to replace the complete flat cable with five needles when only one needle needs to be replaced and is therefore a cost-saving solution.

NIHON KOHDEN aEEG needles are easy in handling and genius in design.

Supply Code	Model	Description
NKD-NM2512		aEEG Needles for Preterms/Neonates with flat cable tree, size: 0.25 x 12 mm (31 G) **For current products:** EEG-1200/9100; BSM-6000/9100 **Packing unit:** 10 x 5 pcs with flat cable & 5 single exchange needles D



Facts

Hydrogel electrodes are characterized by an easy application as they are self-adhesive. To obtain low impedances, the skin preparation is very important. They are particularly used for immature preterm babies with little hair.

Supply Code	Model	Description
NKD-N300		Mini Hydrogel Electrodes, preterms > 1.5 kg, size: 25 mm dia **For current products:** EEG-1200/9100; BSM-6000/9100 **Packing unit:** 20 x 3 pcs D
NKD-N306		Micro Hydrogel Electrodes, preterms < 1.5 kg, size: 10 x 25 mm **For current products:** EEG-1200/9100; BSM-6000/9100 **Packing unit:** 20 x 3 pcs D





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Facts

Cup electrodes are well known in conventional neuro-paediatric EEG monitoring and can be easily attached to hair-covered areas by conductive paste. As for hydrogel electrodes low impedances depend on the skin preparation before the recording.

Supply Code	Model	Description
H526	NE-134A	EEG Electrode (Collodion), Ag, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** EEG-1200/9100; BSM-3000/6000/9100; PSG-1100; MEB-2300; MEE-1000 **Packing unit:** 12 pcs R

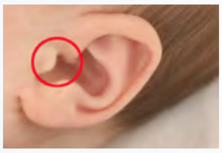


Application Steps for aEEG Positioning Help

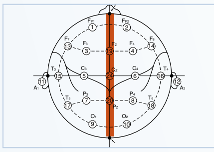
Steps / **Description**

1 Size
- Selection of the right size of the application help.
- 2 Sizes are available at NIHON KOHDEN: SMALL and NORMAL.

2 Ear Tragus
- Identify the TRAGUS point of the ear.



3 Sagital Suture
- Imagine the SAGITAL SUTURE of the head.



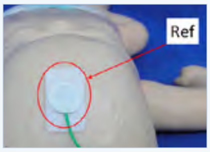
4 Start
- Take the white side of the application help.
- Apply the upper part (marked with EAR TRAGUS) to the Ear Tragus.
- Put the application help totally over the ear so that you can see the Ear Tragus.
- Apply the application help vertically over the scalp.
- Make sure that the letter at the EAR TRAGUS is the same as at the SAGITAL SUTURE.
- Once the letters are the same, mark at both sides of the flash the electrode position. The flash guarantees the same distance on both sides of the head.



5 Repeat
- Repeat the procedure from Point 4 from the other side of the head to identify the 2 other electrode positions.



6 Reference
- The reference electrode can be applied either over the shoulder blade or centrally to the front.
- Use an adhesive and conductive fixation gel (e.g. Grass paste).



Supply Code	Model	Description
NF-EEG/HELP		Positioning Ruler Kit for aEEG **For current products:** EEEG-1200/9100; BSM-6000/9100 **Packing unit:** 1 kit D



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Supply Code	Model	Description
NKD-KR26DIN15		Extension Cable, 1.5 mm DIN jack to 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** EEG-1200/9100; BSM-6000/9100 **Packing unit:** 5 pcs R
NKD-EC2		Conductive Grass Paste EC2 for long-term EEG measurement, 100 g tube **For current products:** EEG-1200/9100; BSM-3000/6000/9100 **Packing unit:** 10 pcs D
NKD-NUPREP		Skin Preparation Gel for Neonates, 114 g tube, reduces the skin impedance **For current products:** EEG-1200/9100; BSM-6000/9100 **Packing unit:** 3 pcs D
NKD-BN505		10/20 BraiNet Head Box Overlay, adhesive coloured stickers for head box port customization **For current products:** EEG-1200/9100; BSM-3000/6000/9100 **Packing unit:** 1 kit D









Facts

In order to simplify the aEEG application a special Minibox for the EEG junction box JE-921A was created with only five inputs which are mandatory for aEEG. Therefore there is less confusion which inputs should be used as you only need to plug in your electrodes in the aEEG Minibox that is connected to the head box by a board adapter.

The same principle as for the subdermal aEEG needle electrodes NKD-NM2512 included in the aEEG Starter Kit 3 was kept: easy and quick indication of the position by genius labels. Beside the common neurology electrode position names the inputs are marked with easy understandable abbreviations:

Electrode 1: Z=Ground (colour: black)

Electrode 2: RB=Right Back=P3 (colour: white)

Electrode 3: RF=Right Front=C4 (colour: grey)

Electrode 4: LF=Left Front=C3 (colour: violet)

Electrode 5: LB=Left Back=P3 (colour: blue)

Supply Code	Model	Description
NKD-aEEG/ Minibox		Mini Input Box for EEG Head Box JE-921A, with 5 inputs for 2-channel aEEG (C3, C4, P3, P4, Z), cable length: 4.0 m **For current products:** EEG-1200/9100 **Packing unit:**1 pcs R



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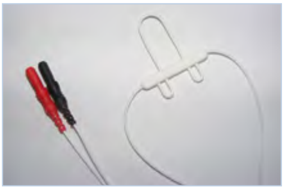
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IV. Accessories & Consumables for Polysomnography (PSG)

Polysomnography (PSG) is a multi-parametric examination of the patients' biophysiological condition during an overnight study including brain activity (EEG), eye movements (EOG), muscle activity (EMG), electrocardiogram (ECG), airflow, pulse oximetry (SpO_2) and expired carbone dioxide ($ETCO_2$). The overall monitoring of the patient during sleep helps to detect sleep disorders such as narcolepsy, sleep apnoea, insomnias or restless legs. Based on the recorded information sleep specialists evaluate the results and define patients' therapies.

15. Sleep Study Accessory Kits

Supply Code	Model	Description
NKD-SLEEPKITA		**Standard Starter Kit for Sleep Diagnostics Adult for Head Box JE-912 and PSG-1100!** **Kit contains:** 1 thermocouple sensor adult (NKD-SLP1401), 1 kit of inductive belts with 1.2 m (NKD-SLP9003-L120), 1 kit of chest and abdomen interface cables (NKD-INDUCTKIT), 1 snore sensor (NKD-SLP1250), 1 body position sensor 3.5 mm (NKD-SLP1575), 1 box of disposable ECG electrodes adult (G203) and according snap connection cables (NKD-15026N), 1 package of EEG cup electrodes (H526), 1 tube of conduction paste (NKD-EC2), 4 extension cables (NKD-KR26DIN20), 2 tubes of skinPure skin preparation gel (F020) **For current products:** EEG-1200/9100; PSG-1100 **Packing unit:** 1 kit


NKD-SLP1401


NKD-SLP9003-L120


NKD-SLP9101


NKD-SLP9102


NKD-SLP1250


NKD-SLP1575



G203


NKD-15026N


H526



NKD-EC2


NKD-KR26DIN20



F020

Supply Code	Model	Description
NKD-SLEEPKITP		**Standard Starter Kit for Sleep Diagnostics Paediatric for Head Box JE-912 and PSG-1100!** **Kit contains:** 1 thermocouple sensor child (NKD-SLP1401P), 1 kit of inductive belts with 0.6 m (NKD-SLP9003-L60), 1 kit of chest and abdomen interface cables (NKD-INDUCTKIT), 1 snore sensor (NKD-SLP1250), 1 body position sensor 3.5 mm (NKD-SLP1575), 1 box of disposable ECG electrodes child (G210C) and according snap connection cables (NKD-15026N), 1 package of EEG cup electrodes (H526), 1 tube of conduction paste (NKD-EC2), 4 extension cables (NKD-KR26DIN20), 2 tubes of skinPure skin preparation gel (F020) **For current products:** EEG-1200/9100; PSG-1100 **Packing unit:** 1 kit


NKD-SLP1401P


NKD-SLP9003-L60


NKD-SLP9101


NKD-SLP9102


NKD-SLP1250


NKD-SLP1575



G210C


NKD-15026N


H526



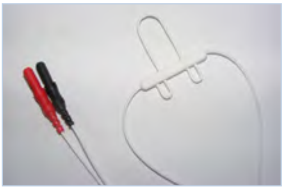
NKD-EC2


NKD-KR26DIN20



F020

Supply Code	Model	Description
NKD-SLEEPKITA921		**Standard Starter Kit for Sleep Diagnostics Adult for Head Box JE-921!** **Kit contains:** 1 thermocouple sensor adult (NKD-SLP1401), 1 kit of inductive belts with 1.2 m (NKD-SLP9003-L120), 1 kit of chest and abdomen interface cables (NKD-INDUCTKIT), 1 snore sensor (NKD-SLP1250), 1 body position sensor 2.5 mm (NKD-SLP1582), 1 box of disposable ECG electrodes adult (G203) and according snap connection cables (NKD-15026N), 1 package of EEG cup electrodes (H526), 1 tube of conduction paste (NKD-EC2), 4 extension cables (NKD-KR26DIN20), 2 tubes of skinPure skin preparation gel (F020) **For current products:** EEG-1200/9100 **Packing unit:** 1 kit


NKD-SLP1401


NKD-SLP9003-L120


NKD-SLP9101


NKD-SLP9102


NKD-SLP1250


NKD-SLP1582



G203


NKD-15026N


H526



NKD-EC2


NKD-KR26DIN20



F020

Supply Code	Model	Description
NKD-SLEEKITP921		**Standard Starter Kit for Sleep Diagnostics Paediatric for Head Box JE-921!** **Kit contains:** 1 thermocouple sensor child (NKD-SLP1401P), 1 kit of inductive belts with 0.6 m (NKD-SLP9003-L60), 1 kit of chest and abdomen interface cables (NKD-INDUCTKIT), 1 snore sensor (NKD-SLP1250), 1 body position sensor 2.5 mm (NKD-SLP1582), 1 box of disposable ECG electrodes child (G210C) and according snap connection cables (NKD-15026N), 1 package of EEG cup electrodes (H526), 1 tube of conduction paste (NKD-EC2), 4 extension cables (NKD-KR26DIN20), 2 tubes of skinPure skin preparation gel (F020) **For current products:** EEG-1200/9100 **Packing unit:** 1 kit


NKD-SLP1401P


NKD-SLP9003-L60


NKD-SLP9101


NKD-SLP9102


NKD-SLP1250


NKD-SLP1582



G210C


NKD-15026N


H526



NKD-EC2


NKD-KR26DIN20



F020

Supply Code | **Model** | **Description**

NKD-CPAPKITA

CPAP Starter Kit for Sleep Diagnostics Adult
Kit contains: 1 DC pressure sensor kit 2.5 mm (NKD-SLP14834KIT), 1 pressure transducer (NKD-PTRANS)

For current products: EEG-1200/9100
Packing unit: 1 kit


NKD-SLP14834KIT


NKD-PTRANS

NF-SCREEN/AC2

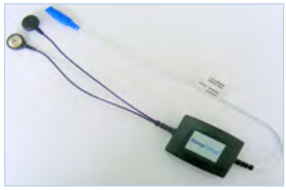
Accessory Kit for Trackit Sleepwalker
Kit contains: 1 kit of 5 adult cannulas (NKD-SLP15805AFT-10), 1 kit of inductive belts with 1.2 m (NKD-SLP9003-L120), 2 interface cables abdomen and chest with keyhole connector (NKD-SLP9101NO, NKD-SLP9102NO), 1 kit of limb movement sensor kit with keyhole connector (NKD-SLP1771KIT), 2 Y-Splitter (NKD-SLP1726), 2 extension cables for interface cables (NKD-SLP1326)

For current products: NF-SCREENER
Packing unit: 1 kit


NKD-SLP15805AFT-10


NKD-SLP9003-L120


NKD-SLP9101NO


NKD-SLP9102NO


NKD-SLP1771KIT (NKD-SLP1771, NKD-SLP1730)


NKD-SLP1726

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16. Sleep Study Accessories

16.1. EEG Electrodes

16.2. Pastes & Creams

16.3. ECG Electrodes

16.4. Snore Sensors

16.5. Body Position Sensors

16.6. Respiratory Effort Sensors

16.7. Flow Sensors

16.8. Limb Movement Sensors

16.9. NIHON KOHDEN SpO_2 Probes

16.10. NONIN SpO_2 Probes

16.11. $ETCO_2$ Measurement

16.12. Sensor Tester

16.1. EEG Electrodes

Supply Code	Model	Description
H526	NE-134A	EEG Cup Electrode (Collodion), Ag, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** EEG-1200/9100; BSM-3000/6000/9100; PSG-1100; MEB-2300; MEE-1000 **Packing unit:** 12 pcs R
H527	NE-136A	EEG Cup Electrode (Collodion), Ag, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 0.7 m **For current products:** EEG-1200/9100; BSM-3000/6000/9100; PSG-1100; MEB-2300; MEE-1000 **Packing unit:** 12 pcs R
NKD-FE5GH		Grass Gold Disk Electrode, Au, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 10 pcs R
NKD-FE5GH-07		Grass Gold Disk Electrode, Au, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 0.7 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 10 pcs R
NKD-FE5GH-12		Grass Gold Disk Electrode, Au, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 1.2 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 10 pcs R
NKD-FE5GH-24		Grass Gold Disk Electrode, Au, size: 10 mm dia, 1.5 mm touch proof connector, cable length: 2.4 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 10 pcs R
NKD-FE6GH60		Grass Gold Disk Electrode, Au, size: 6 mm dia, 1.5 mm touch proof connector, cable length: 1.5 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 10 pcs R







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16.2. Pastes & Creams

Supply Code	Model	Description
F010	Z-101BC	cardioCream ECG Electrode Paste, 100 g tube **Packing unit:** 2 pcs D cardioCream
F020	YZ-0019	skinPure Skin Preparation Gel, reduces the electrode skin impedance, 135 g tube Note: Can be used with all surface applied electrodes. **Packing unit:** 2 pcs D skinPure





Facts

The NIHON KOHDEN electrode paste Elefix integrates outstanding sticking qualities with an excellent electrical conductivity. Additionally Elefix has a creamy quality so that the electrodes can be attached firmly to the patient without additional fixation. Elefix does not harden so that the electrodes can be removed without any problems even after longer examinations. The contact impedance between skin and electrode is greatly reduced. In addition, the signal transmission remains stable even under unfavourable external conditions. NIHON KOHDEN Elefix can be used with all surface applied electrodes.

Supply Code	Model	Description
F509	Z-181JE	Elefix EEG Conduction Paste, 180 g tube **Packing unit:** 1 pcs D Elefix
F510	Z-401CE	Elefix EEG Conduction Paste, 400 g cup **Packing unit:** 1 pcs D Elefix





Supply Code	Model	Description
NKD-EC2		Conductive Grass Paste EC2 for long-term EEG measurement, 100 g tube **Packing unit:** 10 pcs D
KOL-1		Collodion Kit, 6.5 ml bottles **Packing unit:** 20 pcs D





16.3. ECG Electrodes

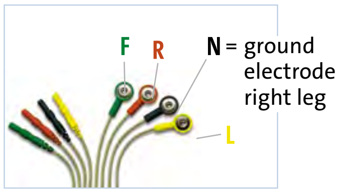
Facts

NIHON KOHDEN VITRODE Disposable ECG Electrodes –

The result of over 30 years experience in disposable electrode manufacturing.

The ECG electrodes are the most important portions of the ECG/arrhythmia monitoring system. It is through these electrodes that the electrical signals are conducted from the patient and into the monitoring system. If the electrodes are left in place for an extended period of time (over 48 hours), or they are reused once they are removed, they do not adhere to the patient's skin and they cause "noisy" ECG signals because of the poor conduction. In addition, the patient's movement causes the electrodes to lose conducting capabilitie's intermittently, and this leads to a "wandering" ECG waveform and muscle artefact. The standard monitoring practice is to change these electrodes at least every 48 hours.

Please contact us for individual offer based on your annual volume! Use the possibility of call orders!

Supply Code	Model	Description	
G203	L-150	ECG Electrode Vitrode L, Ag/AgCl, adult, size: 35 mm dia, foam tape, solid gel, general use **Packing unit:** 5 x 30 pcs D Vitrode L Vitrode	
G210D	F-150M	ECG Electrode Vitrode F, Ag/AgCl, adult, size M: 25 x 45 mm, cotton tape especially for sensitive skin, adhesive gel **Packing unit:** 3 x 50 pcs D Vitrode F Vitrode	
G210C	F-150S	ECG Electrode Vitrode F, Ag/AgCl, neonate/child, size S: 18 x 36 mm, cotton tape especially for sensitive skin, adhesive gel **Packing unit:** 3 x 50 pcs D Vitrode F Vitrode	
NKD-15026N		ECG Snap Lead Wire Kit, 1.5 mm touch proof connector, cable length: 1.5 m, colours: red, yellow, green, black **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 4 pcs R	

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16.4. Snore Sensors

Snore sensors respond to snoring, picked up by the vibrations of the skin, and convert them to a small analogue voltage that provides a clear, reliable indication of the presence of these sounds. Piezo or dynamic sensors do not require a battery or interface. They are easily activated by plugging the output connector into the appropriate input on the head box.

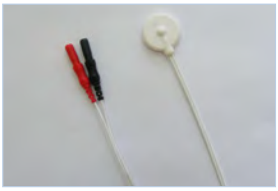
Facts

The piezo snore sensor consists of a piezo-electric crystal that converts vibrations in the neck caused by surface vibrations from snoring to a small analogue voltage. To enhance the signal quality throughout movements or sweating, the piezo snore sensor has a small knob to guarantee a continuous contact with the patient's skin.

Attaching the sensor

1. The piezo snore sensor should be always fixed to the patient's on lower neck, over trachea.
2. To position the sensor, place the knob side of the piezo snore sensor against the skin and use hypoallergenic medical tape for facial skin to tape the sensor in place. Ensure that the snore sensor is well attached. Otherwise vibrations cannot be clearly transmitted to the sensor during snoring.
3. Fix the wire as a loop.
4. Before starting the measurement, check the signal transmission by asking the patient to simulate snoring.

Supply Code	Model	Description
NKD-SLP1250		Piezo Snore Sensor, size: 2.5 x 1.0 cm, cable length: 2.0 m, 1.5 mm touch proof connector **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R



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16.5. Body Position Sensors

The body position sensor is destined to report sleeping positions of patients during sleep (dorsal, ventral, lateral left, lateral right or sitting) and to diagnose sleep-disordered breathing. The sensor signal that is transmitted to the measurement system is created by gravity evoked switches when patients are changing their sleeping positions.

Facts

Sensor application

1. For an optimal positioning of the sensor, the patient should lie on his/her back.
2. Apply the body position sensor either on the effort sensor belts or the dedicated body position sensor belt. Place the position sensor at the exact centre of the body over the sternum over patients' nightclothes.
3. Tighten the body position belt with caution. Make sure that the belt is not too loose to avoid incorrect measurements during the night.
4. Secure that the body position sensor is still over the sternum.
5. Fix the cable about 12 cm from the sensor with tape to reduce tension and secure a reliable measurement.
6. Connect the output connector to the appropriate input on the measurement system.
7. Ask the patient to show all positions and check that the signals on the PSG system are correctly indicated before leaving the patient.

Supply Code	Model	Description
NKD-SLP1575KIT		DC Body Position Sensor Kit, 3.5 mm connector, incl. 1 x NKD-SLP1575 & 1 x NKD-SLP1550 **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 kit R



NKD-SLP1575



NKD-SLP1550

Supply Code	Model	Description
NKD-SLP1575		DC Body Position Sensor, 3.5 mm connector, length: 3.2 cm, width: 2.7 cm, height: 0.9 cm **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R
NKD-SLP1550		Body Position Sensor Belt, length: 1.7 m, width: 2.7 cm, adjustable, black **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R
NKD-SLP1582		DC Body Position Sensor, 2.5 mm connector, length: 3.0 cm, width: 2.7 cm, height: 1.2 cm **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 pcs R



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16.6. Respiratory Effort Sensors

During Polysomnograpy (PSG) the classification of respiratory events is based on the measurement of the respiratory effort to score the various types of apnoeas (obstructive with a continued respiratory effort, central with no effort, or mixed with mainly no effort followed by obstructive phases and to define an efficient treatment).

Piezo crystal effort sensors contain a piezo crystal that is floating inside the sensor box. Elastic belts around the chest and abdomen measure tensions during respiratory effort. Volume changes are then detected by generated voltage through the floating piezo sensor that is either compressed or stretched. Measurements with piezo crystal effort sensors can have artefacts when patients squeeze the belts during sleep and changing the tension on the piezo crystal sensor or when patients are lying on the sensor.

To overcome such restraints respiratory inductive plethysmography (RIP) belts have wire loops along the belt and therefore generating a magnetic field. As the inductance is precisely encircling the body (measurement area), it changes when the patients breath. The signal is generated based on the inductance changes.

16.6.1. Respiratory Piezo Crystal Effort Sensors

Facts

1. Select the proper size of the belt for the patient – 80% of the body should be covered by the belt, 20% should be done by the elastic part of the belt.
2. The thorax belt should be placed below the armpit. The abdomen belt is placed 2 – 4 cm over the belly button.
3. The sensor box should be placed at the centre of the body.
4. Connect one end of the belt to the sensor, locate the right sensor position and buckle the sensor belts around the patients' body over the nightclothes. The sensor should not touch the skin. Then connect the other belt end to the sensor and tight the band.
5. Check the correct positioning of the belts by asking the patient to cross the arms over the head.
6. Tape the cable approximately 13 cm away from the sensor.
7. Check the correct signals transmission on the EEG system before leaving the patient.

Supply Code	Model	Description
NKD-SLP1370KIT		Piezo Crystal Effort Sensor Kit, 1.5 mm touch proof connector, incl. 1 x NKD-SLP1370 & 1 x NKD-SLP1350 **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 kit R



NKD-SLP1370



NKD-SLP1350

Supply Code	Model	Description
NKD-SLP1370		Piezo Crystal Effort Sensor, Double Buckle, 1.5 mm touch proof connector, size: 13 cm from buckle to buckle, cable length: 2.3 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R
NKD-SLP1350		Large Buckle Band, clip, width: 2.7 cm, length: 1.55 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R

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Supply Code	Model	Description
NKD-SLP1387KIT		Piezo Crystal Effort Sensor Kit, 1.5 mm touch proof connector, incl. 1 x NKD-SLP1387, 1 x NKD-SLP1340 & 1 x NKD-SLP1341 **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 kit R


NKD-SLP1387


NKD-SLP1341


NKD-SLP1342

NKD-SLP1387		Piezo Crystal Effort Sensor, Double Loop, 1.5 mm touch proof connector, sensor size: 11 cm from loop to loop, cable length: 2.3 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R
NKD-SLP1341		Large Velstretch Band, width: 4 cm, length: 1.14 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R
NKD-SLP1342		Small Velstretch Band, width: 2.7 cm, length: 0.73 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R

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Supply Code	Model	Description
NKD-SLP1388KIT		Piezo Crystal Effort Kit, 1.5 mm touch proof connector, incl. 1 x NKD-SLP1388, 1 x NKD-SLP1342 & 1 x NKD-SLP1343 **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 kit R


NKD-SLP1388


NKD-SLP1342


NKD-SLP1343

NKD-SLP1388		Piezo Crystal Effort Sensor, Double Velcro tabs, 1.5 mm touch proof connector, sensor size: 23 cm from end to end (Velcro tab), cable length: 2.3 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R
NKD-SLP1342		Small Velstretch Band, width: 2.7 cm, length: 0.73 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R
NKD-SLP1343		Infant Velstretch Band, width: 2.7 cm, length: 0.36 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R

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Supply Code	Model	Description
NKD-SLP1389KIT		Piezo Film Effort Kit, 1.5 mm touch proof connector, incl. 1 x NKD-SLP1389, 1 x NKD-SLP1340 & 1 x NKD-SLP1341 **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 kit R


NKD-SLP1389


NKD-SLP1340


NKD-SLP1341

NKD-SLP1389		Piezo Film Effort Sensor, Double Loop, adult, 1.5 mm touch proof connector, sensor size: 15 mm x 37.5 mm, cable length: 2.3 m (from sensor to connectors) **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R
NKD-SLP1340		X-Large Velstretch Band, width: 4 cm, length: 1.73 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R
NKD-SLP1341		Large Velstretch Band, width: 4 cm, length: 1.14 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R

Supply Code	Model	Description
NKD-SLP1391KIT		Piezo Respiration Effort Belt Kit, keyhole connector dark grey, incl. 1 x NKD-SLP1391 & 1 x NKD-SLP1350, cable length: 0.5 m **For current products:** NF-SCREENER **Packing unit:** 1 kit R

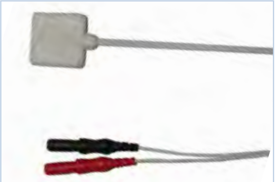

NKD-SLP1391


NKD-SLP1350

Supply Code	Model	Description
NKD-SLP1391		Piezo Crystal Effort Sensor, Double Loop, keyhole connector, cable length: 0.5 m **For current products:** NF-SCREENER **Packing unit:** 1 pcs R
NKD-SLP1350		Large Buckle Band, clip, width: 2.7 cm, length: 1.55 m **For current products:** NF-SCREENER **Packing unit:** 1 pcs R

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Supply Code	Model	Description	
NKD-SLP1390		Infant Beltless Piezo Effort Sensor, 1.5 mm touch proof connector, sensor size: 2 x 2 cm, cable length: 2.0 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R	
NKD-SLP1340		X-Large Velstretch Band, width: 4 cm, length: 1.73 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R	
NKD-SLP1341		Large Velstretch Band, width: 4 cm, length: 1.14 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R	
NKD-SLP1342		Small Velstretch Band, width: 2.7 cm, length: 0.73 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R	
NKD-SLP1343		Infant Velstretch Band, width: 2.7 cm, length: 0.36 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R	
NKD-SLP1347		Disposable Soft Band, roll, length: 25 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R	
NKD-SLP1350		Large Buckle Band, clip, width: 2.7 cm, length: 1.55 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R	

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16.6.2. Respiratory Inductive Plethysmography (RIP) Belts

Facts

Respiratory Inductive Plethysmography (RIP) Belts provide an enhanced patient comfort thanks to their high-quality, soft and flexible material. An easy adjustment to different patients' size is permitted by the Velcro tabs. Sliding and shifting of the belts during night is reduced by the belt width. For easy recognition of the belt sizes, the end pieces are colour-coded. The Inductive Interface Cables are intended to connect the Inductive Plethysmography (RIP) Belts to a PSG System.

Supply Code	Model	Description	
NKD-SLP9002S		Inductive Plethysmography Belt XS, neonate, width: 2 cm, length: 0.4 m, belt colour: white, end piece colour: black **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 2 pcs R	
NKD-SLP9003-L40		Inductive Plethysmography Belt S, child, width: 4 cm, length: 0.4 m, belt colour: blue, end piece colour: white **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 2 pcs R	
NKD-SLP9003-L60		Inductive Plethysmography Belt M, child, width: 4 cm, length: 0.6 m, belt colour: blue, end piece colour: red **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 2 pcs R	
NKD-SLP9003-L90		Inductive Plethysmography Belt L, adult, width: 4 cm, length: 0.9 m, belt colour: blue, end piece colour: dark blue **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 2 pcs R	
NKD-SLP9003-L120		Inductive Plethysmography Belt XL, adult, width: 4 cm, length: 1.2 m, belt colour: blue, end piece colour: black **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 2 pcs R	
NKD-SLP9003-L150		Inductive Plethysmography Belt XXL, adult, width: 4 cm, length: 1.5 m, belt colour: blue, end piece colour: yellow **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 2 pcs R	

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Supply Code	Model	Description
NKD-INDUCTKIT		Inductive Interface Cable Kit, incl. 1 x NKD-SLP9101 & 1x NKD-SLP9102 **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 kit R


NKD-SLP9101

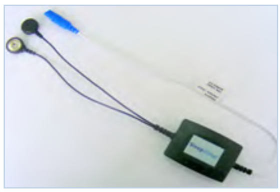

NKD-SLP9102

NKD-SLP9101		Inductive Interface Cable, abdomen, 1.5 mm touch proof connector, cable length: 2.3 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R
NKD-SLP9102		Inductive Interface Cable, chest, 1.5 mm touch proof connector, cable length: 2.3 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R

Supply Code	Model	Description
NKD-SLP9101NO		Inductive Interface Cable for Trackit Sleepwalker, abdomen, keyhole connector, cable length: 0.6 m (from end to end incl. snap) **For current products:** NF-SCREENER **Packing unit:** 1 pcs R



NKD-SLP9102NO		Inductive Interface Cable for Trackit Sleepwalker, chest, keyhole connector, cable length: 0.45 m (from end to end incl. snap) **For current products:** NF-SCREENER **Packing unit:** 1 pcs R



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16.7. Flow Sensors

Monitoring the airflow existence or absence is an additional PSG parameter besides the respiratory effort to detect apnoeas. Different types of airflow sensors are available:

1. The thermocouple technology is based on two different metal wires that produce a voltage with increasing temperature.
2. Thermistors instead are based on dissimilar metal oxides that show a decreasing resistance when temperature increases, means material changes occur with temperature.

The temperature changes of inhaled air (cools the sensor) and exhaled air (heats sensor) are converted in a signal and present therefore airflow fluctuations. Even if the inspiratory and expiratory fluctuations are recorded by temperature from thermocouple or thermistor, these signals are proportional to the flow.

Pressure transducers, however, are the most sensitive airflow sensor type and are therefore particularly used for hypopnoea detection.

16.7.1. Reusable Thermistors

Facts

Attaching the thermistor flow sensor

1. Place the sensor under the patients' nostrils and above the patients' upper lip.
2. Curve the two nasal prongs away from body sensor. They should not enter the nostrils.
3. Direct the peak of the oral prong to the centre of the mouth/upper lip.
4. Take the wires on both sides and bind them behind the patients' ears. They can be fixed with medical tape.
5. Set the wire tight with the clasp under the chin.

Supply Code	Model	Description	
NKD-SLP1468		Reusable Airflow Thermistor, adult, keyhole connector, cable length: 0.9 m **For current products:** NF-SCREENER **Packing unit:** 1 pcs R	
NKD-SLP1468H		Reusable Airflow Thermistor, adult, keyhole connector, with hanger for cannula, cable length: 0.9 m **For current products:** NF-SCREENER **Packing unit:** 1 pcs R	
NKD-SLP1469		Reusable Airflow Thermistor, adult, 1.5 mm touch proof connector, cable length: 2.0 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R	

16.7.2.

Reusable Thermocouples

Facts

Attaching the thermocouple sensor

1. Place the sensor under the patients' nostrils and above the patients' upper lip.
2. Curve the two nasal prongs away from body sensor. They should not enter the nostrils.
3. Direct the peak of the oral prong to the centre of the mouth/upper lip.
4. Take the wires on both sides and bind them behind the patients' head. They can be fixed with medical tape.
5. Set the wire tight with the clasp under the chin.

Facts

This thermocouple sensor was especially designed for minimal nasal respiration flow detecting of infants and preterm babies. A strong and precise signal is created by attaching the thermocouple on the forehead.

Supply Code	Model	Description
NKD-SLP1400		Reusable Thermal Flow Sensor, infant, 1.5 mm touch proof connector, sensor size: 7 mm x 5.5 cm, cable length: 2.0 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R



Facts

This robust designed paediatric thermocouple sensor can be adjusted to paediatric patients' comfort by bendable prongs.

Supply Code	Model	Description
NKD-SLP1401P		Reusable Thermocouple Flow Sensor, child, 1.5 mm touch proof connector, sensor size: 2.7 x 2 cm, cable length: 2.0 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R



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Supply Code	Model	Description
NKD-SLP1401		Reusable Thermocouple Flow Sensor, adult, 1.5 mm touch proof connector, sensor size: 3.5 cm x 4.0 cm, cable length: 2.0 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R
NKD-SLP1401H		Reusable Thermocouple Flow Sensor, adult, 1.5 mm touch proof connector, with hanger for cannula, sensor size: 3.5 cm x 4 cm, cable length: 2.0 m Note: This thermocouple sensor can be used with all kind of adult nasal cannula. Thermal flow and pressure flow can be examined at the same time. **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R
NKD-SLP1413		Reusable Oral Thermocouple, adult, 1 channel, 1.5 mm touch proof connector, sensor size: 8 cm x 5 mm, cable length: 2.0 m, apply to nasal pressure cannulas **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R
NKD-SLP1401NOH		Reusable Thermocouple Flow Sensor, adult, keyhole connector, with hanger for cannula, sensor size: 3.5 cm x 4 cm, cable length: 0.75 m **For current products:** NF-SCREENER **Packing unit:** 1 pcs R
NKD-SLP1421H		Reusable Thermocouple Flow Sensor, adult, keyhole connector, with hanger for cannula, sensor size: 3.5 cm x 4 cm, cable length: 1.25 m **For current products:** NF-SCREENER **Packing unit:** 1 pcs R







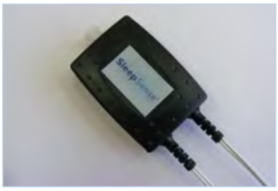


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16.7.3. Airflow Pressure Sensors

Supply Code	Model	Description
NKD-SLP14831KIT		AC Airflow Pressure Plus Kit, 1.5 mm touch proof connector, incl. 1 x NKD-SLP14831 & 5 x Adult Nasal Pressure Cannulas of 2.13 m length **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 kit
NKD-SLP14830KIT		AC Airflow Pressure Sensor Kit, 1.5 mm connector, incl. 1 x NKD-SLP14830 & 5 x Adult Nasal Pressure Cannulas of 2.13 m length **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 kit


NKD-SLP14830


NKD-SLP14831


NKD-SLP15805

Facts

The airflow determination is realized by applying either an $ETCO_2$ or a classic pressure cannula to the sensor and the patient. The detected airflow through the nose supplies the nasal airflow signal and the snore signal. This sensor makes use of an internal piezo crystal to produce a small voltage in answer to pressure changes. Thanks to its very small internal volume it is possible that the output signal accurately tracks pressure changes even with small lumen cannulas. The changes are filtered into two bands – slow waves to the flow channel, and fast waves to the snore channel.

Supply Code	Model	Description
NKD-SLP14830		AC Airflow Pressure Sensor, 1.5 mm touch proof connector **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 pcs R



Facts

This sensor is based on the same technology as NKD-SLP14830 but provides 3 sensitivity levels for snore and flow. According to your measurement requirements, different sensitivities of snore and flow can be easily increased or decreased with the side panels of the module.

Supply Code	Model	Description
NKD-SLP14831		AC Airflow Pressure Sensor Plus, adult, 1.5 mm touch proof connector **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 pcs R



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Supply Code	Model	Description	
NKD-SLP14835KIT		DC Pressure Sensor Kit (Europe), incl. 1 x DC Pressure Sensor 3.5 mm & 1 x DC Power Supply, 3.5 mm male connector **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 kit R	
NKD-SLP14834KIT		DC Pressure Sensor Kit (Europe), incl. 1 x DC Pressure Sensor 2.5 mm & 1 x DC Power Supply, 3.5 mm male connector **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 kit R	
NKD-SLP14834		DC Pressure Sensor, for all patients acc. to cannula size, 2.5 mm male connector **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 pcs R	
NKD-SLP14835		DC Pressure Sensor, for all patients acc. to cannula size, 3.5 mm male connector **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 pcs R	
NKD-SLP14836EU		DC Power Supply (Europe) for DC Pressure Sensor **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 pcs R	
NKD-SLP14837		DC Oesophageal Balloon, Catheter Pressure Sensor, 3.5 mm male connector Note: Please specify with your order if you need a 1.5 mm touch proof connector! For the input box JB-281BK a 1.5 mm touch proof connector is required. **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 pcs D	

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16.7.4.

Pressure Cannulas

Supply Code	Model	Description
NKD-SLP14804AFT-5		Paediatric Nasal Pressure Cannula with Filter, cannula length: 0.6 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100; NF-SCREENER **Packing unit:** 5 pcs D
NKD-SLP15805AFT-10		Adult Nasal Pressure Cannula with Filter, cannula length: 0.6 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100; NF-SCREENER **Packing unit:** 5 pcs D
NKD-SLP14802AFT-5		Adult Nasal & Oral Pressure Cannula with Filter, cannula length: 0.6 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100; NF-SCREENER **Packing unit:** 5 pcs D
NKD-SLP14804BFT-5		Paediatric Nasal Pressure Cannula with Filter, cannula length: 2.13 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100; NF-SCREENER **Packing unit:** 5 pcs D
NKD-SLP14805BFT-5		Adult Nasal Pressure Cannula with Filter, cannula length: 2.13 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100; NF-SCREENER **Packing unit:** 5 pcs D
NKD-SLP14802BFT-5		Adult Nasal & Oral Pressure Cannula with Filter, cannula length: 2.13 m **For current products:** EEG-1200/9100; WEE-1000; PSG-1100; NF-SCREENER **Packing unit:** 5 pcs D
NKD-SLP14809		Disposable Cannula Filter, for all NKD-SLPxxxx-Cannulas with Filter **For current products:** EEG-1200/9100; WEE-1000; PSG-1100; NF-SCREENER **Packing unit:** 5 pcs D
NKD-SLP14810		Cannula Adapter **For current products:** EEG-1200/9100; WEE-1000; PSG-1100; NF-SCREENER **Packing unit:** 5 pcs D







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Supply Code	Model	Description	
NKD-SLPPS036		Male 1.5 mm touch proof connector to Keyhole Adapter **For current products:** EEG-1200/9100; WEE-1000; PSG-1100; NF-SCREENER **Packing unit:** 1 pcs R	
NKD-SLPPS057		Male 1.5 mm touch proof connector to SNAP Adapter **For current products:** EEG-1200/9100; WEE-1000; PSG-1100; NF-SCREENER **Packing unit:** 2 pcs R	
NKD-SLP14807		Luer to O_2 Adapter, for all listed cannulas **For current products:** EEG-1200/9100; WEE-1000; PSG-1100; NF-SCREENER **Packing unit:** 5 pcs D	
NKD-SLP14808		Male to Male Luer Adapter, for all above listed cannulas **For current products:** EEG-1200/9100; WEE-1000; PSG-1100; NF-SCREENER **Packing unit:** 5 pcs D	

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16.7.5. Pressure Transducer

Facts

The pressure transducer is used for detection and imitation of waveforms related to respiration, snoring and further pressure signals. It is intended for use on children (more than two years) and adults.

This device does not need a calibration before use but a battery check is possibly by doing a self-test (push the self-test button). The self-test also signifies s a proper function of the electronic circuit and the connection to the PSG system. A continuous green light on the top of the pressure transducer indicates no need of battery change and typical waveforms can be detected from the three outputs.

The snore output signal on the left side is detected by the snore vibrations on the nasal pressure signal. The channel has an internal 15 Hz low frequency filter to give a flat baseline between snores by taking out the airflow signal.

An unfiltered and filtered output signal can be chosen. Whereas the unfiltered nasal pressure airflow waveform is overlaid with snoring, the filtered nasal pressure airflow output signal makes use of an internal 2.5 Hz high frequency filter to eliminate this.

Once the pressure transducer is ready for use onto the patient, you can use the “Gain Set” function which is an average output level adjustment for each patient. Before putting its low level airflow outputs to about 600 µV peak to peak and the high level airflow signals to 2 volts peak to peak, some breaths of the patient are examined. During this setting the LED on top of the pressure transducer is all the time green. A manual regulation of the output levels can be done when using the up/down output buttons (indicated by the according flash directions).

The pressure transducer is a perfect tool to spot pressure related signals.

Supply Code	Model	Description	
NKD-PTRANS		Pressure Transducer PTAF2, AC/DC output, incl. 1 x Sample Cannula Kit, 1 x NKD-PT1075 & 1 x NKD-PT1080, 9 V alkaline battery, width: 7 cm, length: 12.6 cm, height: 2.4 cm, weight: 130 g (incl. battery), Input pressure range: +/- 25.4 cm H_2O, high level output (typical): 2 V peak to peak, low level output (typical): 600 µV peak to peak **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 kit R	
NKD-PT1075		Replacement Cable for AC Snore/AC Airflow Output, for NKD-PTRANS, 1.5 mm touch proof connector **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 pcs R	
NKD-PT1080		Replacement Cable for DC Airflow Output for NKD-PTRANS, 2.5 mm male connector **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 pcs R	
NKD-PT1327		CPAP Titration Kit for NKD-PTRANS, incl. 1 x CPAP-T-Piece & 1 x NKD-PT1109 **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 kit	



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Supply Code	Model	Description
NKD-PT1107		Disposable Cannula Titration Filter Kit for NKD-PT1327, incl. 50 cannulas **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 kit D
NKD-PT1109		Disposable Cannula Titration Filter Kit for NKD-PT1327, incl. 10 cannulas **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 kit D
NKD-PT1295		Disposable Adult Nasal & Oral Cannula with Filter for NKD-PTRANS, cannula length: 2.13 m, incl. 30 cannulas **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 kit D
NKD-PT1263		Disposable Paediatric Nasal Cannula with Filter for NKD-PTRANS, cannula length: 2.13 m, incl. 60 cannulas **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 kit D
NKD-PT1267		Disposable Paediatric Small Nasal Cannula with Filter for NKD-PTRANS, cannula length: 2.13 m, incl. 60 cannulas **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 kit D
NKD-PT1354		Disposable Paediatric Nasal & Oral Cannula with Filter for NKD-PTRANS, cannula length: 2.13 m, incl. 30 cannulas **For current products:** EEG-1200/9100; WEE-1000 **Packing unit:** 1 kit D



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16.8. Limb Movement Sensors

Supply Code	Model	Description
NKD-SLP1770KIT		Limb Movement Sensor Kit (2 limbs), adult, hand/ankle/foot, 1.5 mm touch proof connector, incl. 1 x NKD-SLP1770 & 1 x NKD-SLP1730 **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 kit R
NKD-SLP1772KIT		Limb Movement Kit (2 limbs), adult, hand/ankle/foot, 1.5 mm touch proof connector, incl. 2 x NKD-SLP1770 & 1 x NKD-SLP1730 **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 kit R


NKD-SLP1770


NKD-SLP1730

Supply Code	Model	Description
NKD-SLP1771KIT		Limb Movement Sensor Kit (2 limbs), adult, hand/ankle/foot, keyhole connector, incl. 2 x NKD-SLP1771 & 1 x NKD-SLP1730 **For current products:** NF-SCREENER **Packing unit:** 1 kit R


NKD-SLP1771


NKD-SLP1730

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Facts

An internal piezo film element detects every movement of the hand or leg. The created signal is transformed to a small analogue voltage providing precise and reliable information of limb movements. The sensor may be connected to any AC (low level) channel on the recorder.

Attaching the limb movement sensor

1. The piezo limb movement sensor is placed on the wrist or ankle with the limb movement cross band kit.
2. For the ankle, please apply the sensor on the front of the foot over the tendons. The cross band shall be attached over the heel. For the wrist, fix the sensor on the inside of the wrist, over the tendons. The band can be overlapped.
3. Fix the band with the Velcro side of the sensor.
4. Fix the cable with medical tape about 15 cm from the sensor.
5. Make sure that the sensor will not move during examination and that the signal is transmitted.

Supply Code	Model	Description	
NKD-SLP1770		Piezo Limb Movement Sensor without Cross Band (2 limbs), adult, hand/ankle/foot, 1.5 mm touch proof connector, cable length: 2.9 m, sensor size black Velcro: 16 cm, gray silicone: 4.5 cm, band length: 29 cm **For current products:** EEG-1200/9100; WEE-1000; PSG-1100 **Packing unit:** 1 pcs R	
NKD-SLP1771		Limb Movement Sensor without Cross Band, adult, hand/ankle/foot, keyhole connector, cable length: 2.0 m, sensor size black Velcro: 16 cm, gray silicone: 4.5 cm, band length: 29 cm, cable colour: white **For current products:** NF-SCREENER **Packing unit:** 1 pcs R	

Supply Code	Model	Description	
NKD-SLP1730		Limb Movement Cross Band Kit for NKD-SLP1770KIT/-SLP1771KIT/-SLP1772KIT, band length: 29 cm **For current products:** EEG-1200/9100; WEE-1000; PSG-1100; NF-SCREENER **Packing unit:** 1 kit R	
NKD-SLP1726		Y-Splitter Cable for NKD-SLP1771, connects 2 leg sensors to 1 system input **For current products:** NF-SCREENER **Packing unit:** 1 pcs R	
NKD-SLP1326		Extension Cable for Inductive Interface Cable with Keyhole Connector, cable length: 0.5 m **For current products:** NF-SCREENER **Packing unit:** 1 pcs R	

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16.9. NIHON KOHDEN SpO2 Measurement

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A Pulse Oximeter is a non-invasive device used to percutaneously measure oxygen saturation in the blood by use of a clip-on finger probe. Pulse oximeter works with the integration of a probe placed onto patient's fingertip or toe, obtains signals from the probe and the main device calculates oxygen saturation in the body.

Oxygen saturation measured by a Pulse Oximeter is SpO_2. "P" stands for "pulse", and the measurement principle is based on beat-by-beat changes in blood volume. In general, arterial oxygen saturation measured by spectroscopic analysis is called "SaO_2", and oxygen saturation measured by pulse oximeter is called "SpO_2".

The method for determination of arterial oxygen saturation, based on the photoelectric plethysmography, was conceptualised and implemented in 1972 by the Japanese bioengineer Takuo Aoyagi (NIHON KOHDEN Corporation). This idea came about while using an ear densitometer for recording dilution curves for dyes (pigments). The first commercial oximeter "OLV-5100" was presented by NIHON KOHDEN back in 1975.

Dr. Aoyagi's innovative technology, pulse oximetry, has rapidly spread worldwide and become essential in critical care. In 2002, Dr. Aoyagi was awarded the Medal of Honor in Japan, in recognition of his great contribution to clinical medicine. The NIHON KOHDEN SpO_2 Sensors of the BluPRO® Series are at the cutting edge of this progressive technology.

16.9.1. NIHON KOHDEN SpO_2 Connection Cables

Supply Code	Model	Description	
Y095A	JL-550T2	SpO_2 Connection Cable, cable length: 2.5 m, round connector **For current products:** TEC-5500/7700; JE-912A/921A/921AG **Packing unit:** 1 pcs R	
K931	JL-900P	SpO_2 Connection Cable, cable length: 2.5 m, rectangular connector **For current products:** all BSM; PVM; TEC-8300; PSG-1100 **Packing unit:** 1 pcs R	

!

Note

SpO_2 measurement starts when the SpO_2 connection cable and SpO_2 probe are connected to the device, and the SpO_2 probe is attached to the patient.

When not measuring SpO_2, disconnect the SpO_2 connection cable from the device. Otherwise, noise from the probe sensor may interfere and incorrect data is displayed on the screen.

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16.9.2. NIHON KOHDEN SpO_2 Probes

BluPRO® SpO_2 Probes – A Unique Sensing Technology

Reliability and high quality of our probes provide a continuous accurate and safe monitoring with highest patient comfort. The com-fortable, sure fitting and lightweight characteristic reduces the effect of hand movement for highly reliable SpO_2 measurement.

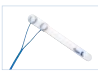
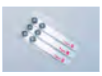
This ensures patient safety, reduces the costs of care and increases therefore clinical efficiency and cost effectiveness. NIHON KOHDEN BluPRO® SpO_2 Probes are comfortable, durable, accurate and needs-oriented.

Note that accurate and safe measurement is assured only when you use probes, connection cords and parts manufactured by NIHON KOHDEN. Some probes in the market may advertise as „compatible with NIHON KOHDEN probes.“ We strongly recommend you to avoid these probes as a correct measurement cannot be guaranteed on NIHON KOHDEN devices. NIHON KOHDEN is not responsible for problems caused by using other manufacturer's probes.

Please contact us for an individual offer based on your annual volume! Use the possibility of call orders!

Low birth weight | Neonate | Infant | Child | Adult

1000 g | 2 kg | 3 kg | 10 kg | 20 kg | 30 kg | 40 kg | 50 kg

Type	Image	Supply Code (Model)	Cable length (m)	Packing unit	Tape
Disposable		P203A (TL-271T)	0.8	24	
		P203E (TL-271T3)	1.6		
		P204A (TL-271T)	0.8	5	
		P204E (TL-271T3)	1.6		
		P203B (TL-272T)	0.8	24	
		P203F (TL-272T3)	1.6		
		P204B (TL-272T)	0.8	5	
		P204F (TL-272T3)	1.6		
		P203C (TL-273T)	0.8	24	
		P203G (TL-273T3)	1.6		
		P204C (TL-273T)	0.8	5	
		P204G (TL-273T3)	1.6		
		P203D (TL-274T)	0.8	24	
		P203H (TL-274T3)	1.6		
		P204D (TL-274T)	0.8	5	
		P204H (TL-274T3)	1.6		
		P228A (TL-051S)	0.8	5	
		P228B (TL-052S)	1.6		
		P229A (TL-061S)	0.8	5	
		P229B (TL-062S)	1.6		
		P205A (TL2601)	1.6	5	tape S / tape L / tape
		P260A (tape S)		24	tape S / tape L / tape
		P260B (tape L)			
Reusable		P225H (TL-201T1)	0.6	1	
		P225G (TL-220T)	1.6		
		P311C (TL-631T3)	1.6		
		P310C (TL-630T3)	1.6		

16.9.2.1. Reusable SpO2 Probes BluPRO®

Reusable, but always clean – NIHON KOHDEN washable probes.

The reusable probes of the BluPRO® series are durable and washable, so you can clean them under running water or even immerse them in a soapy alkaline or disinfectant solution (glutaraldehyde solution 2.0 % or hydrochloric alkyl diaminoethylene glycine 0.5 %)!



P225F/P225H



P225G



P310C/P311C

Durable, washable, demand-oriented!

Facts

NIHON KOHDEN reusable SpO_2 finger-clips probes have parallel mounted upper and lower sensor shells, thus, providing an exact alignment of the optical sensor components and markedly enhanced comfort during long-term attachment. In addition, flexible lateral flaps shield the measuring signals from the external light, thus resulting to minimize the interference by additional artificial light sources! Bright LEDs provide more accurate measurement even for thicker fingers or dark skin tones. The finger-clip reusable probe is the most popular type of SpO_2 probes. Instead of the typical hinge near the finger tip, P225F/P225H have a unique sure fitting and comfortable mechanism using two sliding pieces for the front and back of the finger with two rubber flaps along both sides of the finger. When you press the button, the two halves of the probe slide directly open, parallel to each other. No additional fixation tape is needed. For a stable and comfortable measurement P225F/P225H, always keep the light emitters and detector aligned. NIHON KOHDEN provides unique reusable SpO_2 probes.

Supply Code	Model	Description
P225F	**TL-201T**	SpO_2 BluPRO® Finger-Clip Probe, child/adult (> 20 kg) finger, cable length: 1.6 m, reusable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 1 pcs R
P225H	**TL-201T1**	SpO_2 BluPRO® Finger-Clip Probe, child/adult (> 20 kg) finger, cable length: 0.6 m, reusable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 1 pcs R

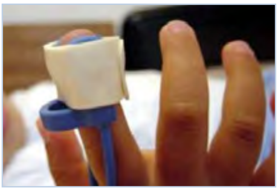


Facts

The multi-site probe P225G can be used for neonatal feet as well as adult fingers as its curved contact surface is designed to fit on different attachment sites. The light emitter and detector are separate which allows especially an accurate alignment of the LED on the infant/neonatal instep. A unique sliding adjuster gives the best fit on the attachment site secured by taping.

Supply Code	Model	Description
P225G	**TL-220T**	SpO_2 BluPRO® Multi-Site Probe, neonate (< 3 kg) instep, child/adult (> 3 kg) finger/toe, cable length: 1.6 m, reusable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 1 pcs R







Facts

Our special designed finger-tip probes, P310C and P311C, fit immediately on the finger and are perfect for long-term measurement. A less covered finger area and cushioned materials lead to decrease pressure to the attachment site. The 3D molding attachment ensures a comfortable fit.

In combination with the soft and lightweight design the patient stress or discomfort is reduced and the probes can be remained up to 8 hours to one attachment site. A stable measurement is assured by gentle fixation tapes P263 or P267 that avoid the falling off of the probes and reduce artifact from cable movement.

Reusable but with the comfort of a disposable probe, P310C and P311C are also applicable for sleep studies, for patients that are often bending their fingers or obese patients.

Supply Code	Model	Description	
P310C	**TL-630T3**	SpO_2 BluPRO® Finger-Tip Probe L, child/adult (> 50kg) finger, cable length: 1.6 m, long-term use, reusable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 1 pcs R	
P311C	**TL-631T3**	SpO_2 BluPRO® Finger-Tip Probe M, child/adult (> 20kg) finger, cable length: 1.6 m, long-term use, reusable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 1 pcs R	
P263		Disposable Probe Cable Fixing Tape for P310C/P311C, adhesive, size: 15 x 130 mm **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 3 x 30 pcs D	
P267	**YS-093P2**	Reusable Probe Fastener Tape for P310C/P311C, adhesive, size: 15 x 140 mm **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 30 pcs R	



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16.9.2.2. Disposable SpO2 Probes BluPRO®

NIHON KOHDEN disposable probes, from neonate to adult sizes, place special emphasis on the exact positioning of the LEDs and detector. For this reason the two optical components are designed separately and can thus be brought into precise alignment with each other by the user. All probes have breathable material and can be remained up to 8 hours on one attachment site. Paediatric probes have a cute cartoon character printed on the tape to reassure children.

Self-adhesive, soft and thin tape provides a secure fit. The special design allows an easy application to the attachment site. To get the most comfortable fit, please bend the probe before attaching, do not strongly pull the attachment tape when attaching and do not push the tip of the finger with the attachment tape.

16.9.2.2.1. Disposable SpO_2 Probes 24 pcs/box – cable length: 0.8 m

Supply Code	Model	Description
P203A	**TL-271T**	SpO_2 BluPRO® Probe, adult (> 30 kg) finger/toe, cable length: 0.8 m, disposable **For current products:** all BSM/PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 24 pcs D



Supply Code	Model	Description
P203B	**TL-272T**	SpO_2 BluPRO® Probe, child (10 – 50 kg) finger/toe, cable length: 0.8 m, disposable **For current products:** all BSM/PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 24 pcs D



Supply Code	Model	Description
P203C	**TL-273T**	SpO_2 BluPRO® Probe, neonate (< 3 kg) instep, adult (> 40 kg) finger/toe, cable length: 0.8 m, disposable **For current products:** all BSM/PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 24 pcs D



Supply Code	Model	Description
P203D	**TL-274T**	SpO_2 BluPRO® Probe, infant (3 – 20 kg) finger/toe, cable length: 0.8 m, disposable **For current products:** all BSM/PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 24 pcs D



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16.9.2.2.2. Disposable SpO$_2$ Probes 24 pcs/box – cable length: 1.6 m

Supply Code	Model	Description	
P203E	**TL-271T3**	SpO$_2$ BluPRO® Probe, adult (> 30 kg) finger/toe, cable length: 1.6 m, disposable **For current products:** all BSM/PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 24 pcs D	
P203F	**TL-272T3**	SpO$_2$ BluPRO® Probe, child (10 – 50 kg), finger/toe, cable length: 1.6 m, disposable **For current products:** all BSM/PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 24 pcs D	
P203G	**TL-273T3**	SpO$_2$ BluPRO® Probe, neonate (< 3 kg) instep, adult (> 40 kg) finger/toe, cable length: 1.6 m, disposable **For current products:** all BSM/PVM/TEC/EEG/PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 24 pcs D	
P203H	**TL-274T3**	SpO$_2$ BluPRO® Probe, infant (3 – 20 kg) finger/toe, cable length: 1.6 m, disposable **For current products:** all BSM/PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 24 pcs D	

16.9.2.2.3. Disposable SpO$_2$ Probes 5 pcs/box – cable length: 0.8 m

Supply Code	Model	Description	
P204A	**TL-271T**	SpO$_2$ BluPRO® Probe, adult (> 30 kg) finger/toe, cable length: 0.8 m, disposable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 5 pcs D	
P204B	**TL-272T**	SpO$_2$ BluPRO® Probe, child (10 – 50 kg) finger/toe, cable length: 0.8 m, disposable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 5 pcs D	
P204C	**TL-273T**	SpO$_2$ BluPRO® Probe, neonate (< 3 kg) instep, adult (> 40 kg) finger/toe, cable length: 0.8 m, disposable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 5 pcs D	

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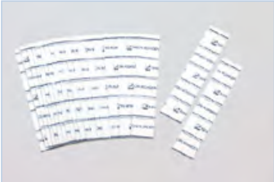
Supply Code	Model	Description	
P204D	TL-274T	SpO_2 BluPRO® Probe, infant (3 – 20 kg) finger/toe, cable length: 0.8 m, disposable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 5 pcs D	

Facts

Absolutely cost-effective, the series P228 and P229 are intended for long-term measurement on a single patient. The probes do not need to be replaced with a new one before 96 hours by changing the attachment site every 8 hours. So your running costs can be reduced!

The light emitter and detector are covered by sponge and the entire attachment site has a flat surface. This reduces the risk of skin burn and irritation.

Since the probe itself is not self-adhesive, you can easily remove and attach the probe to change the attached finger. For fixation, wrap the probe around the finger with attachment tape P259.

Supply Code	Model	Description	
P228A	TL-051S	SpO_2 BluPRO® Probe, neonate (< 3 kg) instep, adult (> 50 kg), finger/toe, cable length: 0.8 m, disposable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 5 pcs D	
P229A	TL-061S	SpO_2 BluPRO® Probe, infant/child (3 – 15 kg) toe, child (15 – 50 kg) finger, cable length: 0.8 m, disposable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 5 pcs D	
P259		COTTONY Tape for fixing disposable SpO_2 Probes, disposable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 20 pcs D	

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16.9.2.2.4. Disposable SpO_2 Probes 5 pcs/box – cable length: 1.6 m

Supply Code	Model	Description
P204E	**TL-271T3**	SpO_2 BluPRO® Probe, adult (> 30 kg) finger/toe, cable length: 1.6 m, disposable **For current products:** all BSM; PVM; TEC; EEG PSG-1100; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 5 pcs D



Supply Code	Model	Description
P204F	**TL-272T3**	SpO_2 BluPRO® Probe, child (10 – 50 kg), finger/toe, cable length: 1.6 m, disposable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 5 pcs D



Supply Code	Model	Description
P204G	**TL-273T3**	SpO_2 BluPRO® Probe, neonate (< 3 kg) instep, adult (> 40 kg) finger/toe, cable length: 1.6 m, disposable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 5 pcs D



Supply Code	Model	Description
P204H	**TL-274T3**	SpO_2 BluPRO® Probe, infant (3 – 20 kg) finger/toe, cable length: 1.6 m, disposable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 5 pcs D



Facts

Absolutely cost-effective, the series P228 and P229 are intended for long-term measurement on a single patient. The probes do not need to be replaced with a new one before 96 hours by changing the attachment site every 8 hours. So your running costs can be reduced! The light emitter and detector are covered by sponge and the entire attachment site has a flat surface. This reduces the risk of skin burn and irritation. Since the probe itself is not self-adhesive, you can easily remove and attach the probe to change the attached finger. For fixation, wrap the probe around the finger with attachment tape P259.

Supply Code	Model	Description
P228B	**TL-052S**	SpO_2 BluPRO® Probe, neonate (< 3 kg) instep, adult (> 50 kg) finger, cable length: 1.6 m, disposable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 5 pcs D



Supply Code	Model	Description
P229B	**TL-062S**	SpO_2 BluPRO® Probe, infant/child (3 – 15 kg) toe, child (15 - 50 kg) finger, cable length: 1.6 m, disposable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 5 pcs D



Supply Code	Model	Description
P259		COTTONY Tape for fixing disposable SpO_2 Probes, disposable **For current products:** all BSM; PVM; TEC; EEG; PSG-1100; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 20 pcs D



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16.9.2.2.5. Disposable Multi-Site SpO_2 Probes 5 pcs/box – cable length: 2.0 m

Facts

The probe P205A is specially designed for extremely sensitive skin. It uses soft and breathable sponge for the attachment tape. The attachment tape and sensor parts are separate. You can select from two sizes of attachment tape: P260A or P260B. When using the probes without those tapes for prematures, SpO_2 measurement may be incorrect and the skin at the attachment site may be irritated.

The attachment tape consists of two parts: adhesive and non-adhesive part. To get best fit, place the tape at the required attachment site. Wrap the sponge attachment tape (non-adhesive part) around the attachment site. Confirm that the light emitters and detector face to each other before removing backing paper of the adhesive part. Then continue wrapping to fasten the probe. Replace the sponge attachment tapes every 24 hours.

Supply Code	Model	Description	
P205A	**TL-260T**	SpO_2 BluPRO Multi-Site Probe, cable length: 2.0 m, neonate (< 3 kg) instep, child/adult (> 3kg) finger/toe, fixed with P260A/B or for P256, single-patient use **For current products**: all BSM; PVM; TEC; EEG **Packing unit**: 5 pcs D	
P260A	**6143-011854**	Sponge Attachment Tape Type S for P205A, premature (< 1 kg) instep, neonate/infant (> 3 kg) finger/toe, disposable **For current products:** all BSM; PVM; TEC; EEG; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 24 pcs D	
P260B	**6143-011863**	Sponge Attachment Tape Type L, neonate (> 3 kg) instep, disposable **For current products:** all BSM; PVM; TEC; EEG; ZS-930/530/940PG; ZM-930/940PG **Packing unit:** 24 pcs D	





Handling of the probe affects measurement accuracy and patient safety

!

For the proper placement of the probe on the finger, it is advisable that the light emitter and detector are placed just opposite to each other. When using a finger-clip probe, it is necessary to ensure that the probe covers the finger properly, otherwise some portion of the light never passes through the body tissues and may reach the light-receiving part directly, leading to incorrect measurement results.

The more distant the light-emitter and detector gets, the weaker the transmitted light intensity becomes. Additionally, a thinner body part tends to have small amount of blood, wich makes it difficult to extract the arterial blood signal component. The most suitable thickness of the probe site is about 10 mm.

Too loose probes may interfere with alignment of LEDs and detector, come off easily by body movement, cause larger motion artifacts or be effected by venous pulse.

Too tight probes may cause venous pulsation, cause skin injuries such as burn and necrosis or unstable measurement because of a lower pulsatile signal.

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16.10. NONIN SpO_2 Probes

Supply Code	Model	Description	
NF-N/8000AA		NONIN reusable SpO_2 Finger-Clip Sensor, child/adult (> 30 kg), cable length: 1.0 m **For current products:** NF-SCREENER; WEE-1000 **Packing unit:** 1 pcs R	
NF-N/8000J		NONIN reusable SpO_2 Flex Sensor, child/adult (> 20 kg), cable length: 1.0 m **For current products:** NF-SCREENER; WEE-1000 **Packing unit:** 1 pcs R	
NF-N/8008J		NONIN reusable SpO_2 Flex Sensor, infant/child (2 - 20 kg), cable length: 1.0 m **For current products:** NF-SCREENER; WEE-1000 **Packing unit:** 1 pcs R	
JL-101A		SpO_2 Adapter for NONIN SpO_2 Sensors, 3.5 mm connector, cable length: 2.0 m **For current products:** WEE-1000 **Packing unit:** 1 pcs R	

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16.11. $ETCO_2$ Measurement (Capnography)

!

Reasons to measure $ETCO_2$ (the level of carbon dioxide in the air exhaled from the body – normal value is about 38 mm Hg):
Capnography helps to detect life-threatening problems in:

- Airway
- Breathing
- Circulation and
- Metabolism

Capnography is a fast and reliable help to determinate respiratory difficulties, wrong connections of airway adapters, leaks in the ventilator circuit due to its placement in the respiratory circuit. An early detection by capnography might help to avoid inadequate oxygen supply of the body.

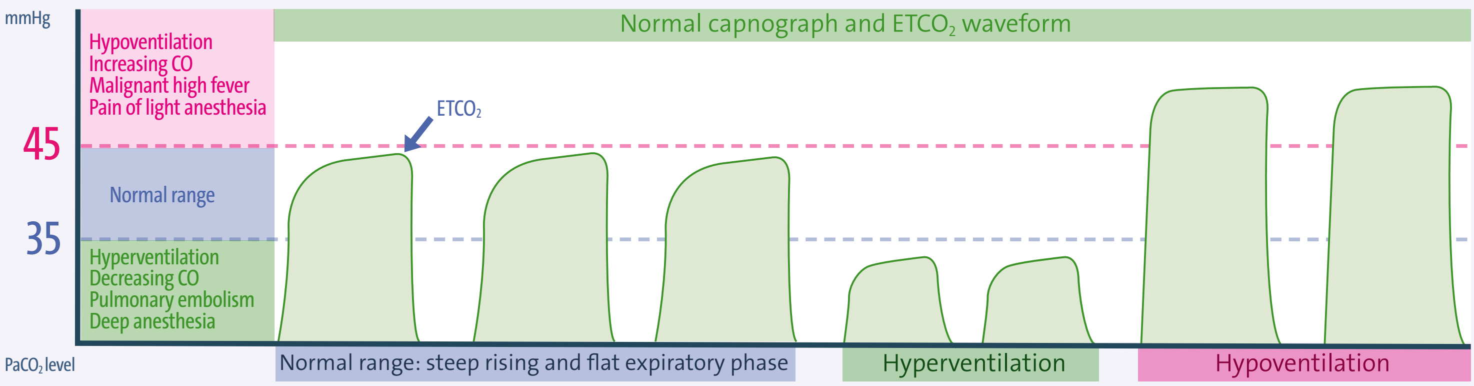
The American Academy of Sleep Medicine (AASM) recommends monitoring hypoventilation as standard parameter. For this purpose the continuous measurement of arterial PCO_2 by trancutaneous PCO_2 or end-tidal PCO_2 for detecting hypoventilation is advised during sleep studies. Both, transcutaneous and end-tidal PCO_2 are reflecting correlations to the arterial PCO_2.

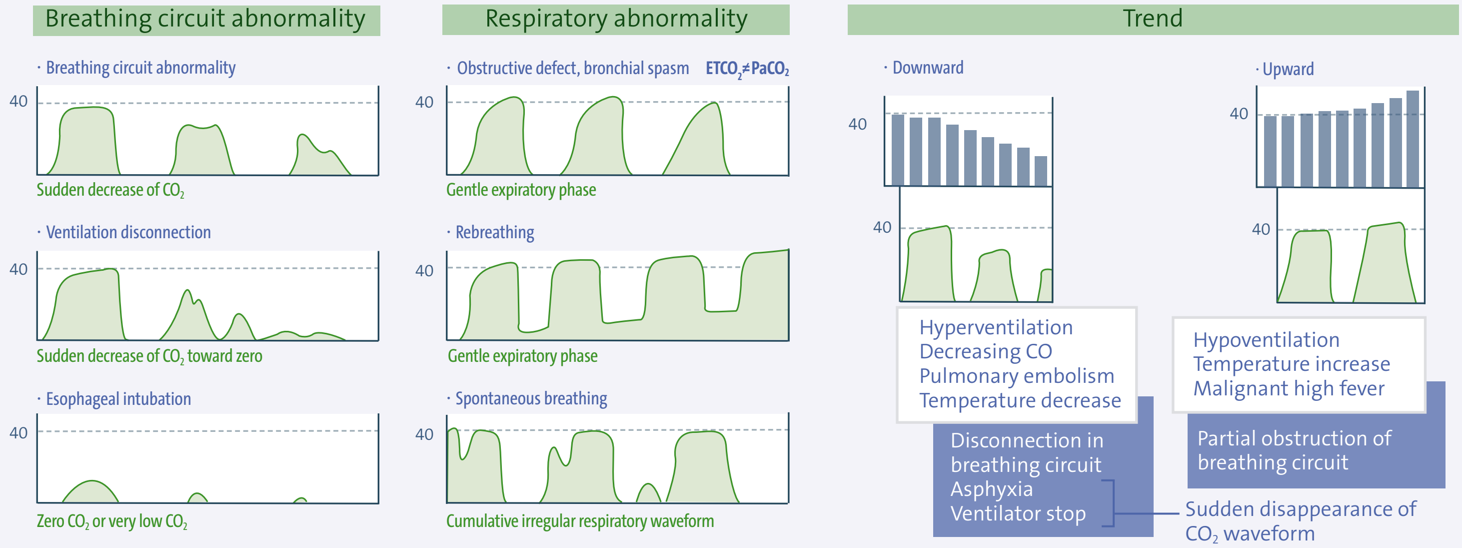
$ETCO_2$ Measurement Overview

The best way to observe the patient's respiratory condition

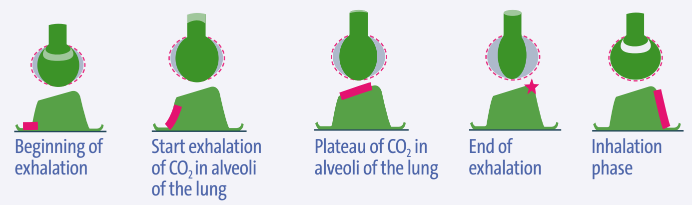
NIHON KOHDEN

$ETCO_2$ shows clinical and technical problems

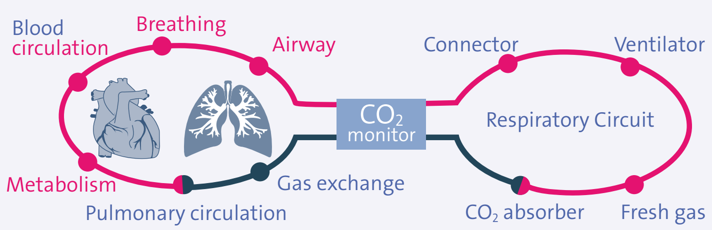




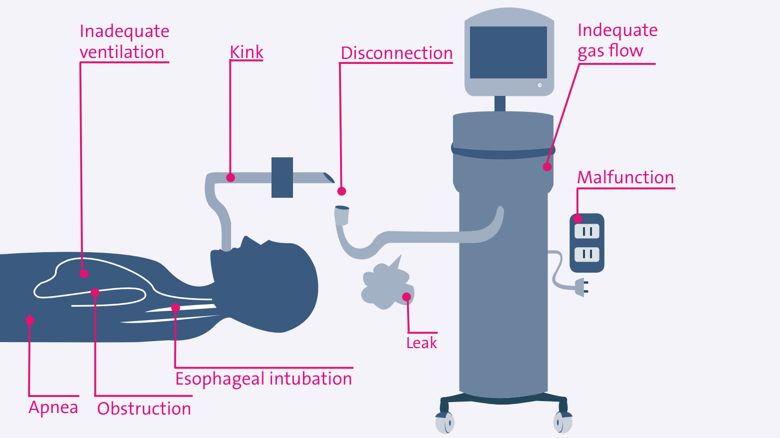
5 phases of the capnograph



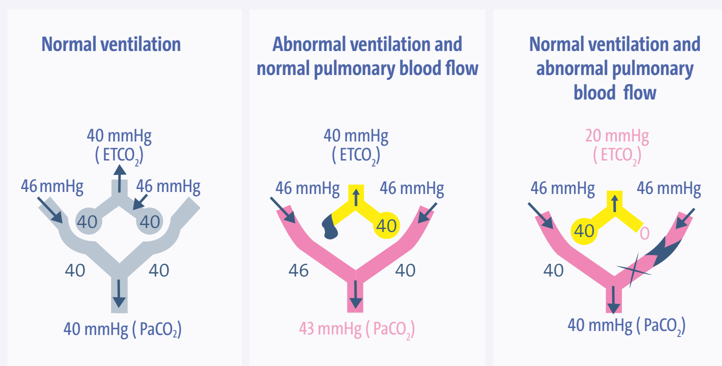
Conditions reflected by $ETCO_2$



Early detection of trouble in breathing or ventilation equipment



$ETCO_2$ and $PaCO_2$ show ventilation and pulmonary blood flow condition

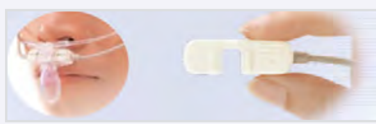


CO_2 Measurement is useful in many hospital sites



ER Neonate OR ICU PSG With ventilator or nebulizer Sedation

Nihon Kohden Unique Sensing Technology



Both intubated and non-intubated cap-ONE CO_2 Sensor

16.11.1.
Intubated Expired and Inspired $ETCO_2$ "Opening a New Era in Capnography"

cap-ONE ORAL NASAL EXPIRATION

Facts

NIHON KOHDEN CO_2 Sensor Sensation – P909 World's smallest and lightest mainstream $ETCO_2$ sensor (quantitative method) with only 4 g (±2 g). This avoids tube pressures and increases patient comfort. Especially for this reason as well as the dead space of approximately 1 ml it is perfectly suited to the most sensible intubated patients – neonates in critical care (application on neonates only with patient monitors). Besides this P909 can be also applied to children and adults. Easy and simple handling is guaranteed by its waterproofness (IPX7 standard) and our Smart Cable™ Technology so that no additional module is needed. Just plug in and start a continuous measurement after only 10 seconds warm-up time. Those features make the P909 an unbeatable help for daily work routine in OR, ER, ICU or Ward.

Supply Code	Model	Description
P909	TG-970P	cap-ONE CO_2 Sensor Kit for Intubated Patients, quantitative measurement, incl. P924/K987, heigth: 8 mm, width: 13 mm, length: 35 mm, cable length: 3.5 m For Airway Adapters: R805/R806 **For current products:** all BSM; PVM-2703; OLG-2800; TEC-8300; PSG-1100 **Packing unit:** 1 pcs R
R805	YG-211T	Airway Adapter for P909, intubated, quantitative method, adult (> 7 kg), dead space: 4 ml **For current products:** all BSM; PVM-2703; OLG-2800; TEC-8300; PSG-1100 **Packing unit:** 30 pcs D
R806	YG-213T	Airway Adapter for P909, intubated, quantitative method, neonate/child (2-7 kg), dead space: 1 ml **For current products:** all BSM; PVM-2703; OLG-2800; PSG-1100 **Packing unit:** 30 pcs D






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16.11.2. Intubated and Non-Intubated Expired ETCO₂ CapOne

"Opening a New Era in Capnography"

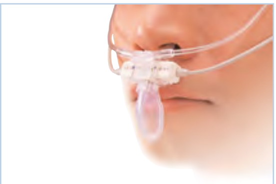
Facts

NIHON KOHDEN cap-ONE – when every breath counts!

World's first wearable mainstream $ETCO_2$ sensor P907 (semi-quantitative method) for intubated and non-intubated patients which is applicable for children and adults.

Unique oral-nasal airway adapters catch oral as well as nasal expired CO_2 – this increases accuracy. The cap-ONE is not only small but has also a mini-weight of only 4 g. This avoids tube pressures and increases patient comfort. Easy and simple handling is guaranteed by our Smart CableTM Technology so that no additional module is needed, just plug in and start measuring after only 5 seconds. A continuous, stable and accurate measurement is ensured due to no lag time and no need to change tubes because of occlusions. Its waterproofness and outstanding shock resistance are an unbeatable advantage in daily work routine.

Those features make the cap-ONE P907 an excellent measurement tool in Sleep Labs, OR, ICU, Recovery Room, PACU, Transport, ER, Cardiac Catheter Laboratory, GI Endoscopy, Pain Management, Abdominal Operation, Obstetric/Orthopedic/Eye Surgery, Plastic or Dental Surgery.





Supply Code	Model	Description	
P907	TG-920P	cap-ONE CO_2 Sensor Kit for Intubated/Non-Intubated Patients, semi-quantitative measurement, incl. P923/K984, size: 11 x 11 x 40 mm, cable length: 3.5 m For Airway Adapters: Intubated patients: R804 Non-intubated patients: V928/V929 with flow measurement; V921/V922/V923 **For current products:** all BSM; PVM-2703; OLG-2800; TEC-8300; PSG-1100 **Packing unit:** 1 pcs R	
P908	TG-921T3	cap-ONE CO_2 Sensor Kit for Intubated Patients, quantitative measurement, incl. P924/K987, cable length: 3.5 m For Airway Adapters: Intubated patients: R804 Non-intubated patients: V928/929 with flow measurement; V921/V922/V923 **For current products:** TEC-5500/7700; EEG-1200/9100/9200 with JE-921A/921AG **Packing unit:** 1 pcs R	
R804	YG-111T	Airway Adapter for P907/P908/P923, intubated, child/adult (> 7 kg), dead space: 4 ml for P907: all BSM; PVM-2703;TEC-8300; OLG-2800; PSG-1100 for P908: TEC-5500/7700 **For current products:** all BSM; PVM-2703; OLG-2800; TEC-5500/7700/8300; PSG-1100 **Packing unit:** 30 pcs D	

Supply Code	Model	Description	
V921	YG-120T	CO_2 Nasal Adapter for Nasal Breathing, non-intubated, child/adult (> 10 kg) for P907: all BSM; PVM-2703;TEC-8300; OLG-2800; PSG-1100 for P908: TEC-5500/7700; EEG-1200/9100/9200 with JE-921A/921AG **For current products:** all BSM; PVM-2703; OLG-2800; TEC-8300; EEG-1200/9100/9200 with JE-921A/921AG; PSG-1100 **Packing unit:** 30 pcs D	
V922	YG-121T	CO_2 Nasal Adapter for Nasal/Oral Breathing, non-intubated, child/adult (> 10 kg) for P907: all BSM; PVM-2703;TEC-8300; OLG-2800; PSG-1100 for P908: TEC-5500/7700; EEG-1200/9100/9200 with JE-921A/921AG **For current products:** all BSM; PVM-2703; OLG-2800; TEC-8300; EEG-1200/9100/9200 with JE-921A/921AG; PSG-1100 **Packing unit:** 30 pcs D	
V923	YG-122T	CO_2 Nasal Adapter for Nasal/Oral Breathing with Oxygen Cannula Holder, non-intubated, child/adult (> 10 kg) for P907: all BSM; PVM-2703;TEC-8300; OLG-2800; PSG-1100 for P908: TEC-5500/7700; EEG-1200/9100/9200 with JE-921A/921AG **For current products:** all BSM; PVM-2703; OLG-2800; TEC-8300; EEG-1200/9100/9200 with JE-921A/921AG; PSG-1100 **Packing unit:** 30 pcs D	
V928	YG-125T	Adult Nasal/Oral CO_2 Adapter for Flow Measurement, child/adult (> 10 kg), dead space: 1.2 ml for P907: PSG-1100 for P908: EEG-1200/9100/9200 with JE-921A/921AG Note: This adapter is to be used for sleep studies for adults and includes an integrated pressure transducer cannula. This adapter needs to be connected to the pressure transducer NKD-PTRANS. **For current products:** EEG-1200/9100/9200 with JE-921A/921AG; PSG-1100 **Packing unit:** 10 pcs D	
V929	YG-135T	Paediatric Nasal/Oral CO_2 Adapter for Flow Measurement, child (> 7 kg), dead space: 1.2 ml for P907: PSG-1100 for P908: EEG-1200/9100/9200 with JE-921A/921AG Note: This adapter is to be used for sleep studies and has a smaller mouth shape for children. It includes an integrated pressure transducer cannula and needs to be connected to the pressure transducer NKD-PTRANS. **For current products:** EEG-1200/9100/9200 with JE-921A/921AG; PSG-1100 **Packing unit:** 10 pcs D	

D Disposable accessories are intended **for single use** only, on one patient, during a single examination! Do not reuse disposable accessories!

R Reusable accessories are intended for repeated patient use on different patients during different examinations. Please make sure to clean reusable accessories after each patient or between different applications to prevent or reduce the risk of cross infections!

16.12. Sensor Tester

Facts

The continuity impedance tester for electrodes, sensor cables, thermocouples etc. is recommended for each sleep laboratory. No calibration is necessary. The tester needs a 9 Volt battery. For testing disconnect sensors and equipment from patient before testing. Never connect it to any electrical power.

Technical features:

1. Hi/Lo/Off switch

- Hi: is for testing thermocouples through the 1.5 mm touch proof connectors.
- Lo: is for all other testing.
- Off: turns power to the unit off and preserves battery life.

2. Sensor test

The sensor test can be done with sensor having 1.5 mm touch proof connectors. Two inputs are available on the sensor tester. The sensor tester can be used for respiratory effort sensors, thermocouples, piezo snore sensors or piezo limb movement sensors.

3. Continuity test

For this test a cable with 1.5 mm touch proof connector and alligator clip is required for testing single wire electrodes to find cable breaks. In the case the electrode is not broken (positive continuity) the sensor tester is giving a sound. If no tone is audible, a cable break is possible.

4. Square wave

The sensor tester can be used to check cable connections and head boxes by sending the square wave output signal into the PSG system. Please note that the required output cables are not included because of various inputs of the different data acquisition units. Please choose the lowest low frequency filter of the PSG system to examine the square wave at its best resolution. Usually the amplitude should be +/- 50 µV whereas 0 – 1 volt output will be visible with high level DC output cables.

5. Display

The LED display shows a bar chart. Any stimulation of the attached sensors will display a change of the bar. When extending an effort sensor, the light will swing accordingly or it will move quickly when a snore sensor is slightly knocked off.

Supply Code	Model	Description
NKD-PTST3		Continuity Tester Kit for Electrodes & Wires, incl. 1 x Sensor Tester & 1 x NKD-PT1315, 9 V alkaline battery, heigth 2.4 cm, width: 7 cm, length: 12.6 cm, weight: 130 g, square wave signal output: 100 µV peak-to-peak, polarity **Packing unit:** 1 kit R



Sensor Tester



NKD-PT1315

Supply Code	Model	Description
NKD-PT1315		Wire Kit for NKD-PTST3 **Packing unit:** 1 kit R



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